DelDOT
Delaware Department of Transportation

PARK AVENUE
RELOCATION

ENVIRONMENTAL ASSESSMENT

FEBRUARY 2018

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Table of Contents

List of Tables

List of Figures

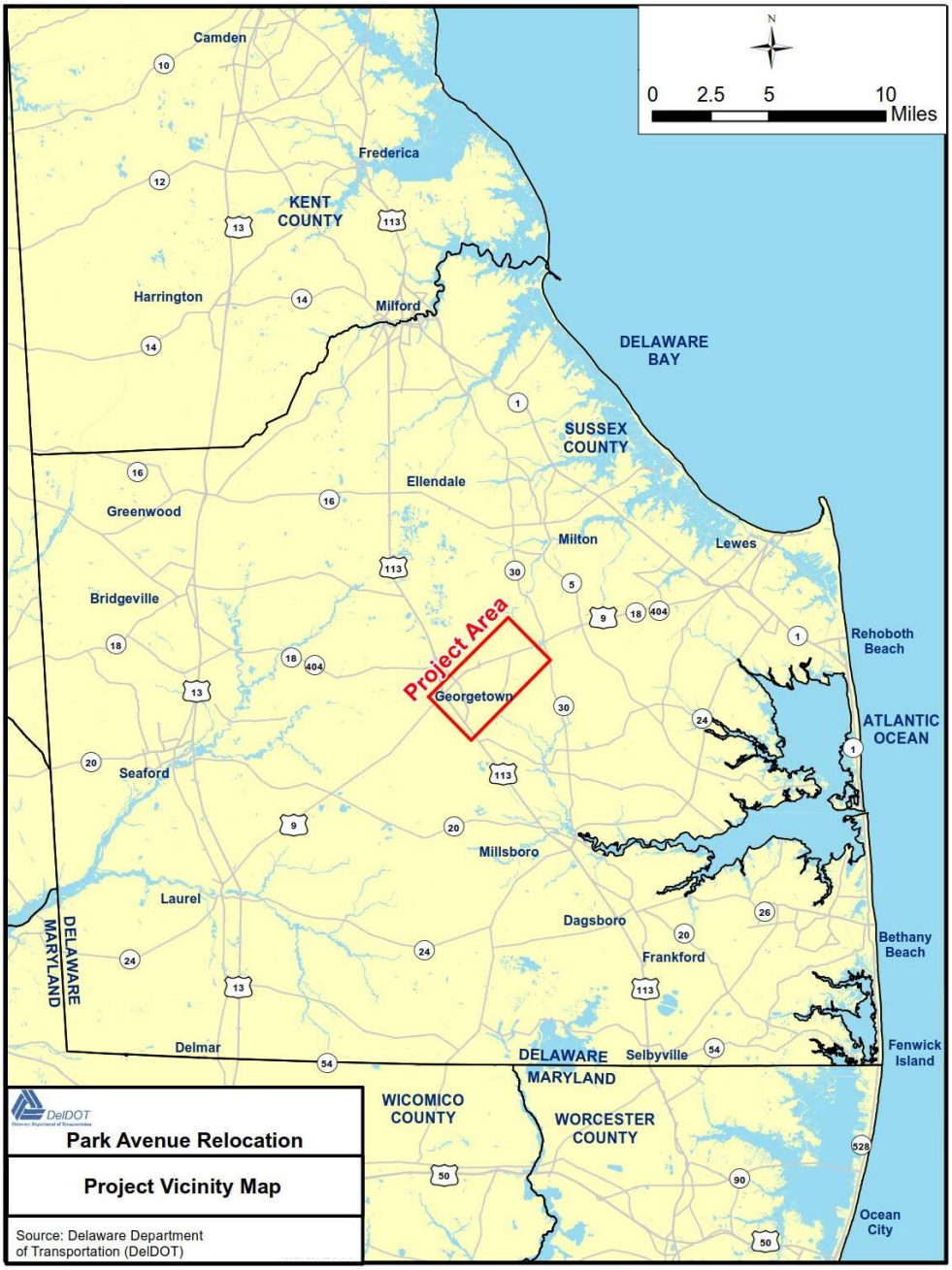
List of Appendices

Chapter 1.0 Purpose and Need

1.1 INTRODUCTION

The Delaware Department of Transportation (DelDOT), in cooperation with the Federal Highway Administration (FHWA), is evaluating the relocation and upgrade of Park Avenue in the southern portion of the Georgetown area, in Sussex County, Delaware (refer to **Figure 1-1**). This Purpose and Need chapter provides background information on the project, describes the study area, and establishes the project's purpose and need.

Figure 1-1: Project Vicinity Map



1.1.1 Background

Park Avenue, also known as US Route 9 Truck Bypass, is the designated truck route for tractor trailers moving through the area, providing access to the Sussex County Industrial Park, southeast of the Delaware Coastal Airport. Sussex County's 2017-2022 Capital Transportation Program Request has identified Park Avenue as a priority for improvement (Sussex County, 2015). DelDOT's Capital Transportation Plan for fiscal year (FY) 2017-2022, the currently approved plan, authorizes funding for preliminary engineering and right-of-way for the project (DelDOT, 2017). The report and plan note that the roads used for the truck bypass should be upgraded with appropriate turn lanes and signalized intersections, and that the truck route should be realigned, removing the truck route from the existing residential areas of Park Avenue and South Bedford Street (Sussex County, 2015 and DelDOT, 2017).

US 9 travels through the Town of Georgetown connecting Laurel, Delaware with Lewes, Delaware. West of DuPont Boulevard (US 113) US 9 is known as County Seat Highway; east of US 113, US 9 is known as Lewes-Georgetown Highway (refer to **Figure 1-1**). To eliminate truck traffic through the center of Georgetown, DelDOT designated a truck bypass which begins at County Seat Highway (US 9) west of Georgetown, then follows US 113, Road 87 (Arrow Safety Road), Road 431 (South Bedford Street), and Park Avenue, and reconnects to Lewes-Georgetown Highway (US 9) east of Georgetown. The five-mile bypass requires that trucks turn at five intersections and cross two railroads at-grade, the Norfolk Southern Line east of South Bedford Street on Park Avenue and the Delaware Coast Line south of Lewes-Georgetown Highway (US 9) on Park Avenue. The bypass is the only access route to the Sussex County Industrial Park and is a main route to the Delaware Coastal Airport (formerly the Sussex County Airport).

1.1.2 Study Area

The study area was developed based upon review of the land use in the area. The area in the vicinity and to the south of Park Avenue, South Bedford Street, and Arrow Safety Road is predominantly industrial or is planned to be industrial with pockets of residences, wetlands, and forested areas, as well as a new residential development planned north of Arrow Safety Road (refer to **Figure 1-2**). The roadways further south of Park Avenue and South Bedford Street, such as Wood Branch Road, support low density residential development. The area north of the Town of Georgetown contains a large section of wetlands and forested areas, including a small section of State Forest. This area is also designated as a well head protection area. Residential mixed with commercial uses border US 9 and US 113; while the majority of the vacant developable land between these roadways is designated for future residential development (Sussex County, 2008). Since the area in the vicinity of the existing truck route is more compatible with truck traffic than the areas to the north or south, the study area was focused on the area in the vicinity of Park Avenue, South Bedford Street, and Arrow Safety Road (refer to **Figure 1-3**).

The project study area extends:

- One-half mile east of Park Avenue
- To one-quarter mile west of US 113

And includes:

- A majority of the Town of Georgetown
- The Delaware Coastal Airport
- The Sussex County Industrial Park

Figure 1-2: Land Use in the Vicinity of the Truck Route

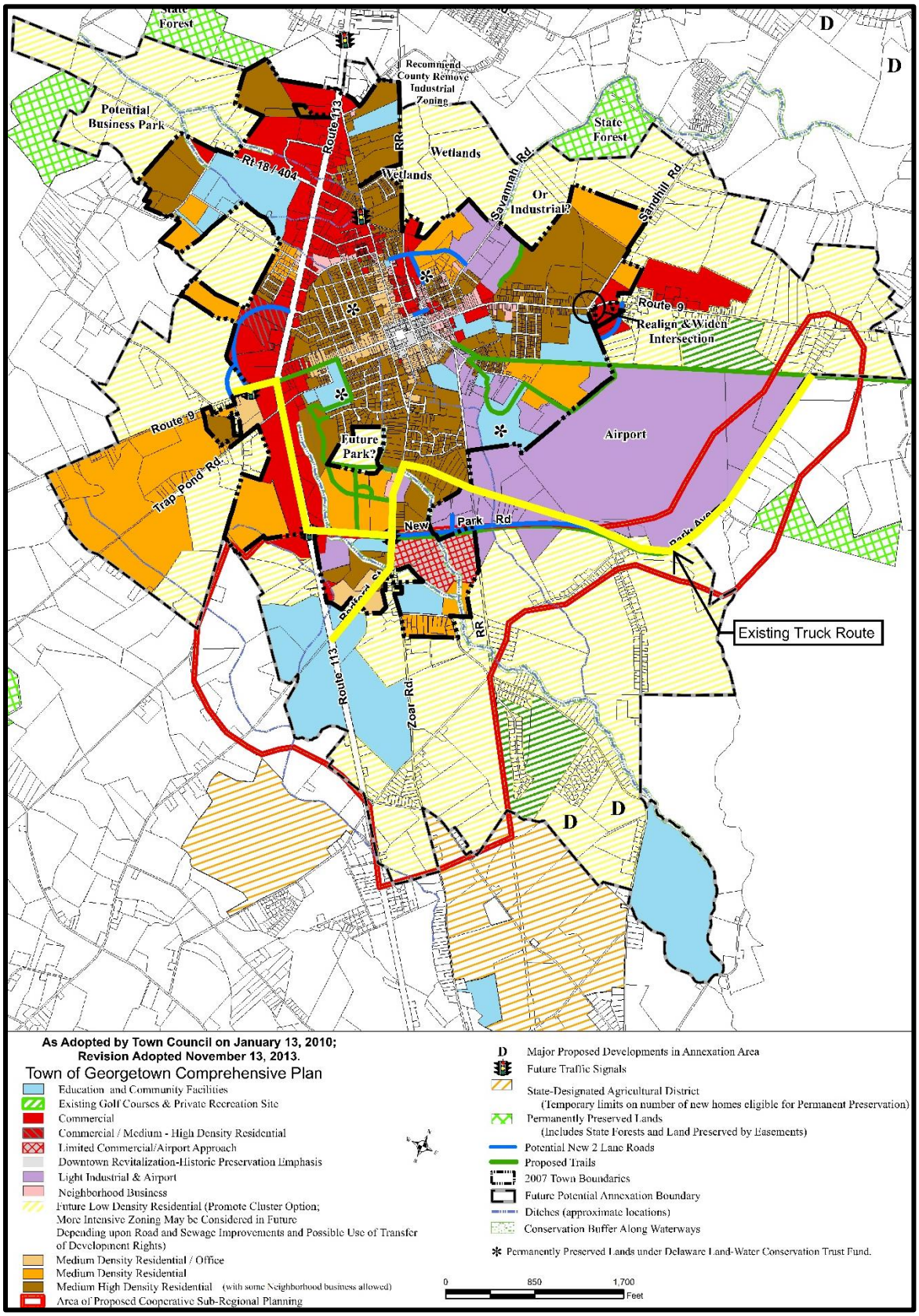
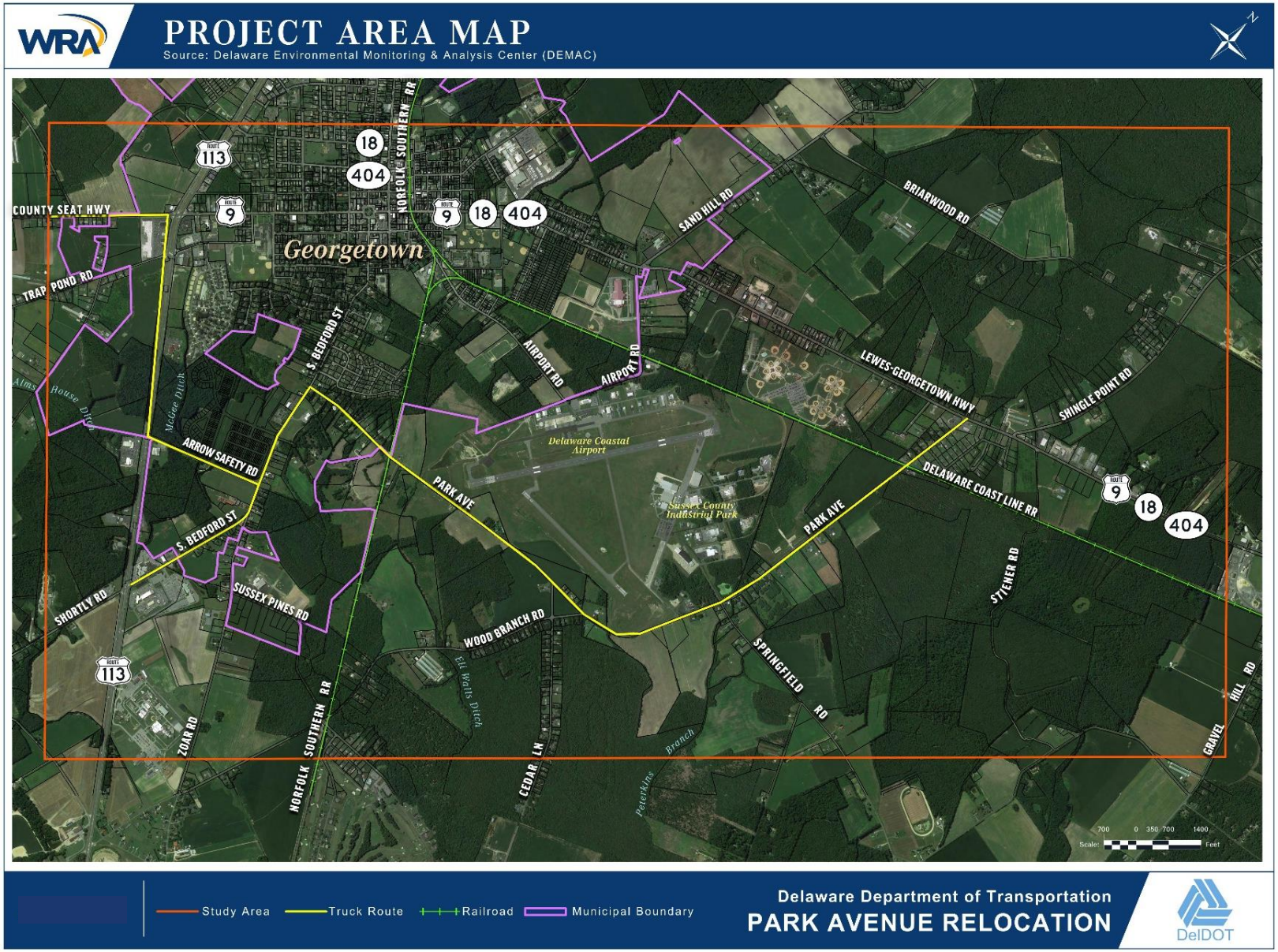


Figure 1-3: Project Area Map



The study area south of Park Avenue and Arrow Safety Road is primarily characterized by woodlands and farmland. The study area north of Arrow Safety Road and north of the eastern portion of Park Avenue consists primarily of commercial and residential areas incorporated by the Town of Georgetown; the area north of Arrow Safety Road is planned for residential development. The study area northeast of Park Avenue is characterized by woodlands, farmland, the Delaware Coastal Airport, and the Sussex County Industrial Park.

1.2 PROJECT PURPOSE

The purpose of the Park Avenue relocation, being undertaken by DelDOT, is to improve the traffic operations and safety of the US 9 truck bypass from east of Georgetown to US 113.

1.3 PROJECT NEED

The primary need for the Park Avenue project is to improve traffic operations and safety. The existing truck route between US 9 and US 113 has several turning movements that hinder traffic operations; the roadway width is narrow and does not meet current design for a truck route; and, the average number of crashes along the truck route between US 113 and US 9 are higher than the state and Sussex County averages. Secondary needs are to support economic growth, and to support federal, state, and local initiatives by focusing on improving transportation infrastructure to provide safe and convenient road access across the region and to areas zoned for business/industrial use.

1.3.1 Primary Need

1.3.1.1 Improve Traffic Operations and Safety

A base model year of 2014 was used to capture existing traffic conditions within the study area and a design year of 2040 is being used to forecast future traffic conditions within the study area. **Table 1-1** summarizes 2014 and 2040 Average Annual Daily Traffic Volumes (AADT) within the study area.

Table 1-1: Average Annual Daily Traffic Volumes (AADT)

Road Name	2014 AADT[1]	2040 AADT[2]
US 113, south of Shortly Road	23,900	29,400
US 113, Shortly Road to Arrow Safety Road	28,100	35,500
US 113, north of Arrow Safety Road	22,200	28,800
South Bedford Street, US 113 to Zoar Road	7,400	10,600
South Bedford Street, Zoar Road to Park Avenue	9,250[3]	12,300
South Bedford Street, north of Park Avenue	8,200	10,600
Arrow Safety Road, US 113 to South Bedford Street	2,075[3]	3,500
Zoar Road, south of South Bedford Street	3,800	5,900
Park Avenue (US 9 Truck), east of South Bedford Street	5,425[3]	8,400
Park Avenue (US 9 Truck), south of US 9	3,800	4,700
US 9	14,270[3]	16,300

1 Per DelDOT's 2014 Traffic Summary

2 Calculated by applying annual growth rates generated using the DelDOT Peninsula Travel Demand Model to the 2014 AADTs

3 Value shown is field-collected ADT data (March 2014 tube counts)

Unless otherwise noted, the 2014 AADTs are based on DelDOT's *2014 Traffic Summary* (DelDOT, 2014a). As shown, the existing AADT along Park Avenue varies from approximately 3,800 near US 9 to approximately 5,400 near South Bedford Street. Future traffic volumes were projected using the annual growth percentages generated using the DelDOT Peninsula Travel Demand Model. Future (2040) AADTs were calculated by applying these growth rates to the existing (2014) traffic volumes. As shown, projected AADTs along Park Avenue vary from approximately 4,700 near Park Avenue to approximately 8,400 east of South Bedford Street.

Project Purpose and Need:

- Improve traffic operations and safety
- Support economic growth
- Support federal, state, and local initiatives

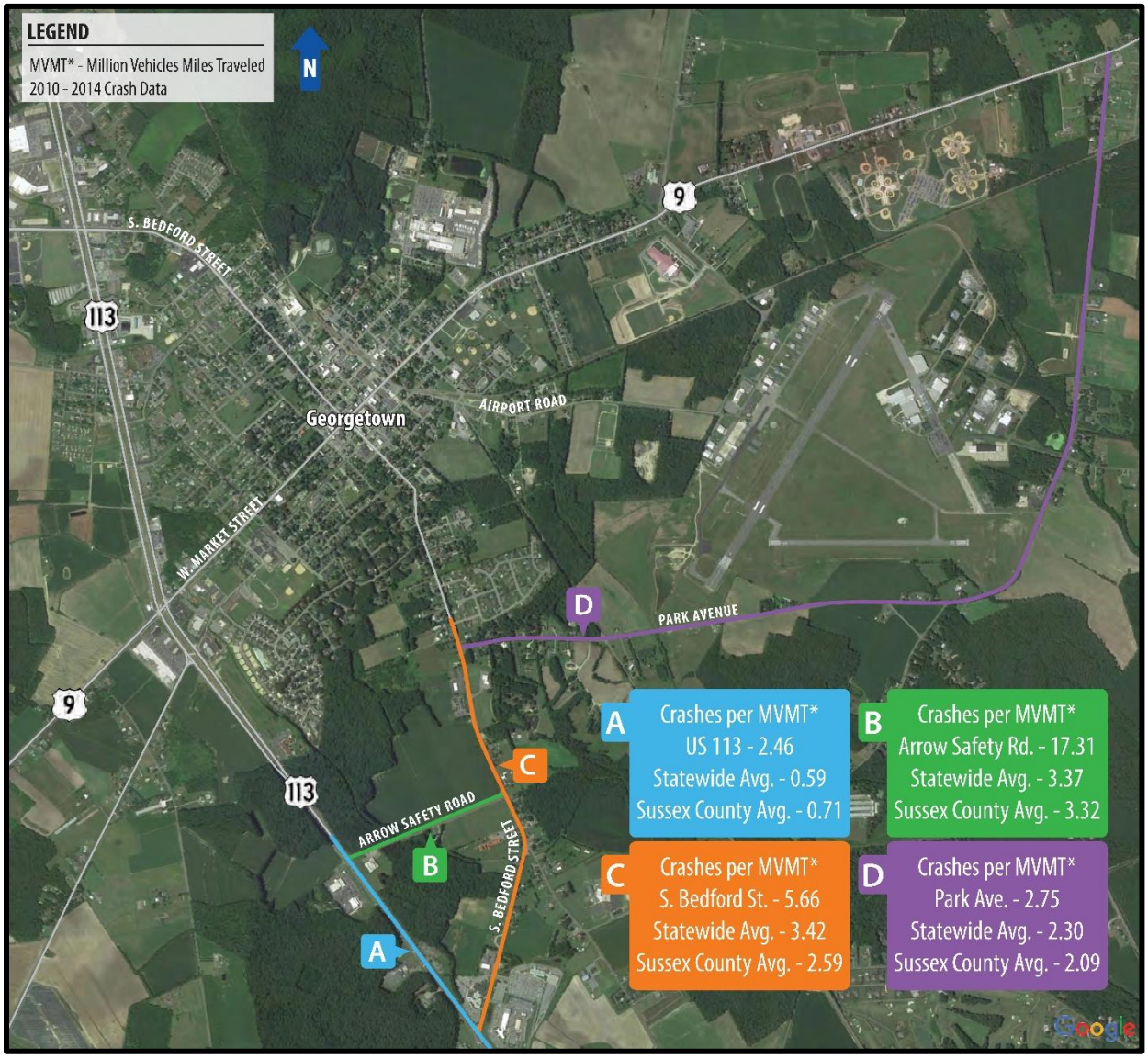
Park Avenue is a two-lane roadway with very narrow shoulders. The existing corridor, a continuance of the US 9 truck route, has as its western terminus at the South Bedford Avenue intersection in the Town of Georgetown. Park Avenue crosses the Norfolk Southern Railway at grade, then continues eastward around the Delaware Coastal Airport, where the roadway makes a curve to the north, crossing the Delaware Coast Line Railroad at grade. Its eastern terminus is US 9 (Lewes-Georgetown Highway) east of Georgetown. Park Avenue is functionally classified as an Urban Major Collector with an existing speed limit of 45 miles per hour and an existing typical section consisting of 10.5-foot travel lanes with 1.5-foot shoulders**.**

Several features of the existing roadway do not meet criteria for the roadway's functional classification. Per the American Association of State Highway and Transportation Officials (AASHTO) criteria for an Urban Major Collector, the typical section of the roadway should have 10-12-foot travel lanes with 8-foot shoulders. Because the roadway is a designated truck route, the travel lane widths are recommended to be 12-foot. In addition to the deficient typical section, the horizontal curvature at one location does not meet AASHTO criteria for a 45 miles per hour speed limit and is posted for 35 miles per hour. Additionally, adequate turn lanes and street lighting are needed at the intersections of Park Avenue and South Bedford Street and South Bedford Street and Arrow Safety Road.

Each fiscal year, DelDOT uses the Critical Ratio methodology to identify high crash locations for their Highway Safety Improvement Program (HSIP), including the Hazard Elimination Program (HEP) and the former High Risk Rural Roads Program (HRRRP). The Critical Ratio methodology uses a statistical test to determine whether the crash rate at a particular location is significantly higher than the average crash rate for locations of similar characteristics.

For the former HRRRP, fatal and incapacitating injury crashes during a three-year study period were analyzed for all rural major collectors, minor collectors, and local roadways. US 113 at Shortly Road/South Bedford Street was identified as part of the 2006 Hazard Elimination Program – Site W, Arrow Safety Road was identified as part of the 2007 HRRRP – Site 7, Park Avenue was identified as part of the 2010 HRRRP – Site 10, and Lewes-Georgetown Highway (US 9) at Park Avenue was identified as part of the 2012 HEP – Site AA. Signing and pavement marking improvements were recommended as part of each of these studies. In addition to signing and pavement marking improvements, the 2012 study recommended signal timing improvements, intersection lighting, and construction of a westbound left-turn lane (with protected-permissive phasing), a northbound right-turn lane and acceleration lane, and an eastbound right-turn lane at the Lewes-Georgetown Highway (US 9) at Park Avenue intersection as part of the Park Avenue Relocation Project.

Figure 1-4: Segment Crash History



Crash summary data within the study area was reviewed for the five-year study period between January 2010 and December 2014. Crashes reported along the roadways within a 30-foot buffer on both sides of the roadway are included. **Table 1-2** summarizes the number of crashes and crash rates along the study segments and provides a comparison to statewide and countywide averages for similar roadways. This information is also displayed in **Figure 1-4**. As shown, all four study segments experience higher than average crash rates compared to both statewide and Sussex County averages for similar roadways. Crash data at the six study intersections was also reviewed.

Table 1-2: Segment Crash History Summary

Road	From	To	Length (miles)	No. of Crashes (2010 - 2014)	Crashes per MVMT[1]		
					Segment	Statewide Average[2]	Sussex Co. Average[2]
A. US 113	0.1 mile south of Shortly Rd/S. Bedford St	0.1 mile north of Arrow Safety Rd	0.83	84	2.46	0.59	0.71
B. Arrow Safety Rd	US 113	S. Bedford St	0.49	26	17.31	3.37	3.32
C. S. Bedford St	US 113	0.1-mile north of Park Ave	1.28	65	5.66	3.42	2.59
D. Park Avenue	S. Bedford St	US 9	3.32	58	2.75	2.30	2.09

1 Million Vehicle-Miles Traveled calculated using weighted AADT based on 2014 DelDOT Traffic Summary
2 2015 Average Crash Rates (based on 2011 to 2013 crash data)

Table 1-3 summarizes the intersection crashes by type, severity, surface condition, and lighting condition. Rear end crashes are the predominant crash type at the US 113 at Shortly Road/South Bedford Street, US 113 at Arrow Safety Road, and US 9 at Park Avenue intersections.

Capacity analyses were performed at the six study intersections during the AM and PM peak hours for existing conditions and 2040 No-Build conditions using *Synchro* 9.1 software with signal phasing and timing data obtained from DelDOT. *Synchro* (*HCM* methodologies) level of service (LOS) and delay results are summarized in **Table 1-4** for both existing and 2040 No-Build conditions. LOS is a qualitative measure used to describe the quality of traffic service. LOS 'A' and 'B' are desirable levels, while LOS 'C' and 'D' are acceptable levels. LOS 'E' and 'F' are considered to be failing levels. Turning movement counts were conducted in March 2014 during a typical weekday at the following intersections: US 113 at Shortly Road/South Bedford Street, US 113 at Arrow Safety Road, South Bedford Street at Zoar Road, South Bedford Street at Arrow Safety Road, and South Bedford Street at Park Avenue. Also used for the analysis was a turning movement count conducted in September 2012 during a typical weekday at the US 9 at Park Avenue intersection.

Where appropriate, existing traffic volumes at the six study intersections were balanced for the purposes of the analysis. Peak hour 2040 No-Build traffic volumes were calculated by applying annual growth rates generated by the DelDOT Peninsula Travel Demand Model to the existing, balanced traffic volumes. Annual growth rates were obtained for each segment / link within the study area (i.e., on all approaches and departures at intersections). When two different growth rates were applicable to a single turning movement at an intersection, the average of the two growth rates was applied to develop the 2040 volume. Similar to existing traffic volumes, 2040 No-Build traffic volumes at the six study intersections were balanced, where appropriate, for the purposes of the analysis. Additionally, existing peak hour factors and heavy vehicle percentages based on existing turning movement counts were input into the existing and 2040 No-Build *Synchro* models.

Table 1-3 – Intersection Crash History Summary (2010 – 2014 Crash Data)

Crash Type/Condition		US 113 at Shortly Rd/S. Bedford St		US 113 at Arrow Safety Rd		S. Bedford St at Zoar Rd		S. Bedford St at Arrow Safety Rd		S. Bedford St at Park Ave		US 9 at Park Ave	
		# of Crashes	% of Crashes	# of Crashes	% of Crashes	# of Crashes	% of Crashes	# of Crashes	% of Crashes	# of Crashes	% of Crashes	# of Crashes	% of Crashes
Manner of Impact	Rear End	40	65%	15	63%	1	17%	2	33%	2	25%	22	69%
	Sideswipe	1	2%	4	17%	1	17%	0	0%	1	13%	1	3%
	Angle	12	19%	1	4%	2	33%	1	17%	3	38%	3	9%
	Single-Vehicle	4	6%	4	17%	2	33%	3	50%	2	25%	5	16%
	Head-On	4	6%	0	0%	0	0%	0	0%	0	0%	1	3%
Severity	Fatality	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
	Injury	14	23%	6	25%	1	17%	1	17%	0	0%	9	28%
	Property Damage Only	48	77%	18	75%	5	83%	5	83%	8	100%	23	72%
Surface Condition	Dry	54	87%	21	88%	6	100%	5	83%	4	50%	23	72%
	Wet	8	13%	3	13%	0	0%	1	17%	4	50%	8	25%
	Mud, Dirt, Gravel	0	0%	0	0%	0	0%	0	0%	0	0%	1	3%
Lighting Condition	Daylight	50	81%	22	92%	4	67%	3	50%	7	88%	25	78%
	Dawn/Dusk	1	2%	1	4%	0	0%	0	0%	0	0%	2	6%
	Dark	11	18%	1	4%	2	33%	3	50%	1	13%	5	16%
Total Number of Crashes at Intersection		62	100%	24	100%	6	100%	6	100%	8	100%	32	100%

Table 1-4 – Capacity Analyses Summary: Existing and 2040 No-Build Conditions (Annual Average)

Intersection	Approach/ Movement(s)	Existing Conditions				2040 No-Build Conditions			
		Delay (sec)		Level of Service		Delay (sec)		Level of Service	
		AM	PM	AM	PM	AM	PM	AM	PM
Signalized Intersections									
US 113 at Shortly Road / South Bedford Street	Eastbound	88.1	67.4	F	E	172.6	77.2	F	E
	Westbound	64.9	70.1	E	E	66.3	113.2	E	F
	Northbound	29.2	35.2	C	D	43.5	48.9	D	D
	Southbound	26.7	56.3	C	E	33.9	100.7	C	F
	Overall Int.	**35.9**	**51.0**	**D**	**D**	**53.9**	**83.2**	**D**	**F**
US 113 at Arrow Safety Road	Eastbound	69.3	84.0	E	F	54.8	102.0	D	F
	Westbound	86.0	104.5	F	F	94.1	85.1	F	F
	Northbound	22.6	23.9	C	C	45.8	46.9	D	D
	Southbound	16.3	11.0	B	B	29.0	18.9	C	B
	Overall Int.	**26.4**	**22.2**	**C**	**C**	**44.4**	**36.2**	**D**	**D**
US 9 at Park Avenue	Eastbound	6.4	7.9	A	A	7.6	10.3	A	B
	Westbound	29.4	29.9	C	C	142.4	218.0	F	F
	Northbound	25.8	24.6	C	C	25.9	26.2	C	C
	Overall Int.	**20.5**	**19.9**	**C**	**B**	**78.8**	**99.1**	**E**	**F**
Unsignalized Intersections									
South Bedford Street at Zoar Road	Zoar Road Through/Left	26.0	15.7	D	C	294.2	70.6	F	F
	Southbound Left	8.9	8.8	A	A	10.2	10.1	B	B
South Bedford Street at Arrow Safety Road	Eastbound	24.4	21.2	C	C	225.2	129.7	F	F
	Northbound Left	8.6	8.8	A	A	9.5	9.9	A	A
South Bedford Street at Park Avenue	Westbound Left	71.3	89.8	F	F	766.9	1064.1	F	F
	Westbound Right	13.8	12.6	B	B	21.2	17.5	C	C
	Southbound Left	9.3	9.0	A	A	10.8	10.6	B	B

Level of Service - A | B | C | D | E | F

Existing Conditions

With existing conditions, the US 113 at Shortly Road/South Bedford Street and US 113 at Arrow Safety Road intersections operate at LOS 'D' and 'C' during both the AM and PM peak hours, respectively. The eastbound Shortly Road, westbound South Bedford Street, and eastbound and westbound Arrow Safety Road approaches to US 113 operate at LOS 'E' or 'F' during both the AM and PM peak hours. The northbound Zoar Road approach to South Bedford Street operates at LOS 'D' and 'C' during the AM and PM peak hours, respectively. The US 9 at Park Avenue intersection operates at LOS 'C' and 'B' during the AM and PM peak hours, respectively. The eastbound Arrow Safety Road approach to South Bedford Street operates at LOS 'C' during both the AM and PM peak hours with existing conditions. The westbound Park Avenue left-turning movement at South Bedford Street operates at LOS 'F' during both the AM and PM peak hours with existing conditions.

2040 No-Build Conditions

With 2040 No-Build conditions, the US 113 at Shortly Road/South Bedford Street intersection degrades to LOS 'F' during the PM peak hour and continues to operate at LOS 'D' during the AM peak hour; however, overall intersection delays increase by approximately 18 seconds. The US 113 at Arrow Safety Road intersection degrades to LOS 'D' during both the AM and PM peak hours. The US 9 at Park Avenue intersection degrades to LOS 'E' and 'F' during both the AM and PM peak hours, respectively. The

northbound Zoar Road and eastbound Arrow Safety Road approaches to South Bedford Street operate at LOS 'F' during both the AM and PM peak hours. Projected delays for the westbound Park Avenue left-turning movement at South Bedford Street are projected to increase significantly (continuing to operate at LOS 'F') during the AM and PM peak hours, respectively, when compared to existing conditions.

1.3.2 Secondary Needs

1.3.2.1 Support Economic Growth

The Town of Georgetown has consistently grown since the 1980s and is expected to continue to grow. From 1940 to 1980 the population hovered under 2,000 residents, but in 1990 the population spiked to 3,732 residents, nearly doubling the population over the ten-year period. The population has continued to increase over the ensuing years – in 2000 the population was 4,642 residents, a 24 percent increase over the ten-year period; and in 2010 the population was 6,422, a 38 percent increase over the ten year period (Census, 2010). The area surrounding the existing Georgetown boundaries has been identified as a growth area and for potential annexation, likely spurring future development (Sussex County, 2008).

Employment data for the County shows a 4.4 percent unemployment rate (not seasonally adjusted), as of December 2016, with 91,606 persons in Sussex County employed out of a labor force of 95,845 (DelDOL, 2017a). This is slightly higher than Delaware's rate of 3.9 percent (not seasonally adjusted) (DelDOL, 2017a).

The most prevalent industries in Sussex County are:

- Education and Health Services (17%),
- Total Government (14%),
- Retail Trade (11%),
- Finance and Insurance (9%), and
- Accommodation and Food Services (9%) (DelDOL, 2017b).

Major employers in Sussex County include the following (Sussex County, 2016):

- *Manufacturing:* ALOFT AeroArchitects (formerly PATS Aircraft Systems), Merck Animal Health, Invista, NRG Energy, and Dogfish Head Brewery.
- *Agriculture:* Mountaire Farms, Allen Harim Foods, LLC, Sea Watch International, and Perdue, Inc.
- *Healthcare:* Beebe Medical Center, Bayhealth Medical Center, Nanticoke Health Services, La Red Health Center, and Peninsula Regional Medical Center.

Total employment across all industries within Sussex County is expected to grow by an estimated ten percent from 2012-2022 (DelDOL, 2017c).

The Delaware Coastal Airport is one of the key economic engines in Sussex County. The airport and the associated Sussex County Industrial Park are situated on 350 acres within the study area. The industrial park complex contains multiple businesses and employs over a thousand people (Sussex County, 2016). Total aviation demands are projected to increase by 23 percent (from 47,124 to 60,881) between 2002 and 2021, with business jet operations increasing by 62 percent (from 2,199 to 5,743) and revenue and non-revenue charter operations increasing by 32 percent (from 5,478 to 8,022) and total operations (FAA, 2011). These anticipated business jet operation increases will create the need for additional hangars, which will lead to increased traffic, jobs, and general economic development to the area (FAA, 2011). As the first step in a multi-phase, $25 million plan to modernize the airport to accommodate faster and heavier aircraft than those currently utilizing it, the Delaware Coastal Airport completed a 500-foot extension of Runway 4-22 to 5,500 feet (Sussex County, 2016).

Improving truck access through this area would allow trucks to more easily access the industrial area, supporting the growth of the expanding industries. Additionally, an improved alignment of the truck route would also accommodate expansion of the Delaware Coastal Airport, allowing for greater use of the airport, and thereby also encouraging the growth of businesses at the Industrial Park.

1.3.2.2 Support Federal, State, and Local Initiatives

Multiple federal, state, and local initiatives have expressed a need to improve freight travel across the region and to encourage freight routes to be located near compatible land use or zoned areas where feasible, as described below.

Federal Initiative

A portion of the ***Grow America Act*** initiative is funding of the HSIP which helps the DOTSs to identify and improve roadway hazards associated with freight transport. As discussed above in **Section 1.3.1.1**, several locations along the existing truck route between US 113 and US 9 have been identified as having high crash locations and have been selected for inclusion in the HEP and/or the former HRRRP. Improvements to the truck route would address these concerns.

The ***Grow America Act*** was implemented to improve safety associated with the transport of freight across the country, providing funding to make capital improvements to the road network, as well as the rail and transit systems (U.S. DOT, 2015).

State Initiative

The Delmarva Freight Plan, prepared by DelDOT in coordination with Maryland DOT, Virginia DOT, and the local planning organizations, identifies the Maryland/Delaware 404 Lewes Freight Corridor, which includes the Truck Route between US 113 and US 9, as one of the major freight corridors on the Delmarva Peninsula (DelDOT, 2015). This corridor connects US 50 near the Bay Bridge to the coastal resorts in Lewes and Rehoboth Beaches, as well as points in between. Since this route is subject to seasonal traffic, minimizing community conflicts has been identified as a key issue. Reducing the number of turning movements as well as improving the truck route around Georgetown would encourage more trucks to use the designated truck route, minimizing conflicts within the Town.

Local Initiatives

An economic development strategy identified in the Sussex County Plan is to “continue coordinating with DelDOT to provide safe and convenient road access to areas zoned for business uses” (Sussex County, 2008). The Plan also notes that Park Avenue should be upgraded to accommodate the increase in truck traffic to the Sussex County Industrial Park (formerly the Aero Park) and to improve access to the airport terminal. The airport and the industrial park comprise the largest industrial-zoned area in the County. Future land use plans call for expansion of the industrial area to include a portion of the area to the south of Park Avenue. This area would be conveniently accessed by the relocated Park Avenue truck route.

The Town of Georgetown Comprehensive Plan identifies a similar initiative. The Plan notes that the Sussex County Industrial Park is almost completely developed, as are the other industrial parks in the County (Town of Georgetown, 2010). The Town suggests that “ready to build” sites should be developed and has designated the areas to the east of Park Avenue, south of the railroad, as well as other areas in the vicinity of relocated Park Avenue. Due to the noise associated with the operations of the airport, the area would not be suitable for residences, reinforcing the decision to zone the area as industrial. Similarly, relocating and improving the truck route at this location would minimize the impact to adjacent residential uses.

Chapter 2.0 Alternatives Comparison

2.1 INTRODUCTION

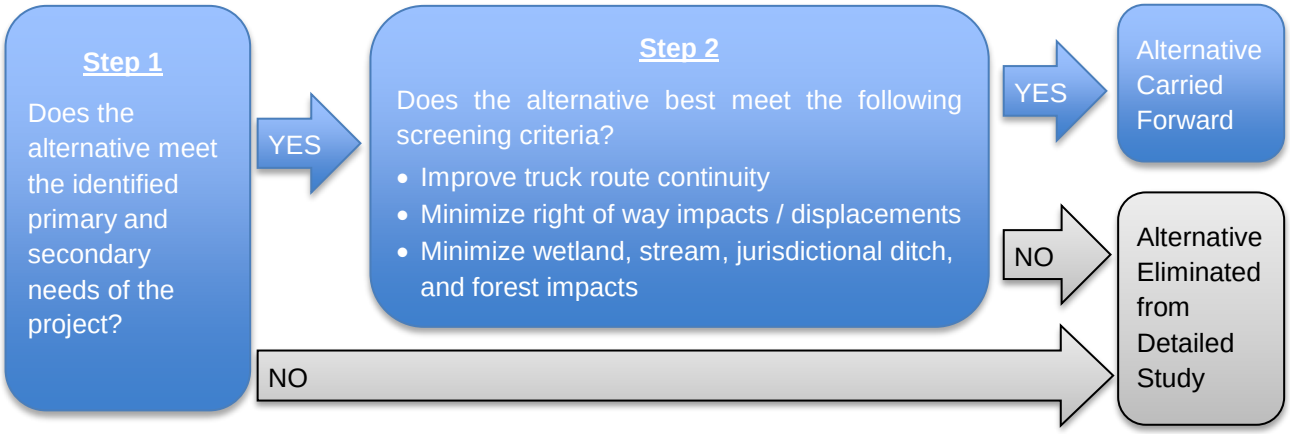
This chapter discusses the alternatives development and screening process, alternatives considered and eliminated from further consideration, and alternatives carried forward for detailed study.

2.2 ALTERNATIVE DEVELOPMENT AND SCREENING

Conceptual alternatives that could potentially address the Purpose and Need for study were developed and then screened and compared by Delaware Department of Transportation (DelDOT) during the conceptual design phase based on criteria developed to determine whether or not the identified elements of Purpose and Need would be met. The primary need for the Park Avenue project is to improve traffic operations and safety of the US 9 truck bypass from east of Georgetown to US 113. Secondary needs are to support economic growth, and to support federal, state, and local initiatives by focusing on improving transportation infrastructure to provide safe and convenient road access across the region and to areas zoned for business/industrial use. The study Purpose and Need is described in detail in **Chapter 1 (Purpose and Need)** of the Environmental Assessment (EA).

As described in **Chapter 1 (Purpose and Need),** since the area in the vicinity of the existing truck route is more compatible with truck traffic than the areas to the north or south, the study area was confined to the area in the vicinity of Park Avenue, South Bedford Street, and Arrow Safety Road (refer To **Figure 1-2**). DelDOT coordinated with the resource agencies, the Federal Aviation Administration (FAA), Sussex County, and the public, as described in **Chapter 4 (Agency and Public Coordination)** of the EA, to develop six Build Alternatives, as well as the No-Build Alternative, within the study area to fully or partially meet the Purpose and Need of the project. DelDOT then evaluated these alternatives following a two step process, as illustrated in **Figure 2-1**. First, alternatives were required to meet both primary and secondary needs of the project. Second, the alternatives that met the need were further evaluated based on screening criteria developed for the project. The following sections discuss how DelDOT proceeded through each of these steps, resulting in the selection of the Preferred Alternative.

Figure 2-1: Alternative Screening Process Flow Chart



2.2.1 Alternatives Developed

Figure 2-2 shows the location of the six Build Alternatives – Alternatives 1 through 6. All of the alternatives begin at US 113, traveling along either Arrow Safety Road or South Bedford Street. The alternatives then use a combination of existing roadways and new alignment, tying back into existing Park Avenue east of the Norfolk Southern Railroad tracks, then traveling along existing Park Avenue to connect with the existing Park Avenue and Lewes-Georgetown Highway (US 9) intersection. All of the alternatives meet the primary needs of the project, improving traffic operations and safety of the US 9 truck bypass, but not all of the alternatives meet the secondary needs of the project, as discussed in **Section 2.2.3**.

The truck route bypass would be classified as an Urban Major Collector roadway with a design speed of 50 miles per hour. The typical section for the entire length of the truck route bypass between US 9 and US 113 for all of the alternatives would include two 12-foot travel lanes with 10-foot shoulders on each side of the travel lane, as shown in **Figure 2-3**. To improve safety, deficient horizontal geometry would be upgraded to meet current American Association of State Highway and Transportation Officials (AASHTO) criteria for the shared alignment portion of the project to remain "on-alignment" with shoulder widths exceeding AASHTO minimum criteria (8-foot) due to the high truck volumes along the corridor. The project would also improve the safety at intersections by providing adequate turn lanes, signing and striping, and lighting, where appropriate.

Under all six alternatives, the existing western Norfolk Southern railroad crossing at Park Avenue would be removed and a new at-grade railroad crossing would be created further south along the railroad where the alternatives cross. Per FAA runway guidelines related to approach clearance, a grade separation was not permissible due to close proximity to the runway terminus. Norfolk Southern was agreeable to the new at-grade crossing with the provisions that the existing crossing be removed and the new crossing would be installed to meet current safety standards. The portion of Park Avenue west of the railroad would remain to provide local access; however this segment would dead end to the west of the railroad with a cul-de-sac (the portion of Park Avenue to be removed is shown in red hatch on **Figure 2-2**).

2.2.2 Screening Criteria

The six Build Alternatives and the No-Build Alternative were evaluated based upon the following criteria:

Improve truck route connectivity

The existing truck route bypass is 5.2 miles between US 113 and US 9 and requires that trucks turn at five intersections. Minimizing this distance would improve the connectivity of the truck route.

Minimize Right of Way Impacts / Displacements

Widening the existing roadways associated with the truck bypass would require right of way takings from adjacent properties. Constructing a new roadway would require larger right of way takings and would displace properties where the new roadway would meet with South Bedford Street. While takings and displacements are unavoidable, these impacts should be minimized to minimize property impacts. Reducing these impacts also helps to reduce the cost of the project.

Minimize Wetland, Stream, Jurisdictional Ditch, and Forest Impacts

The majority of the area between South Bedford Street and Park Avenue is covered by wetlands and forests and crossed by numerous streams and jurisdictional ditches as shown in **Figure 2-2**.

Figure 2-2: Relocation Study Alternatives

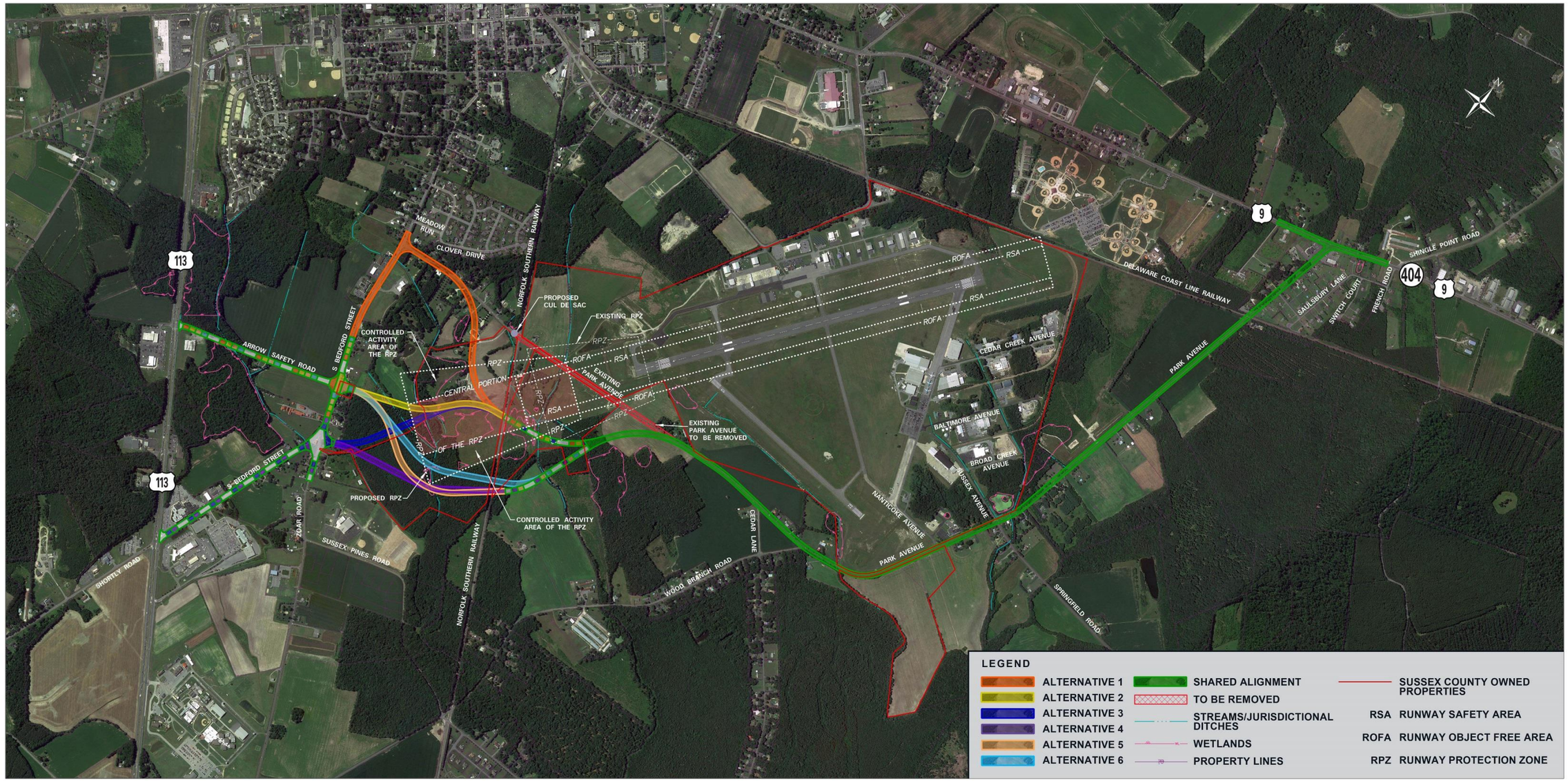
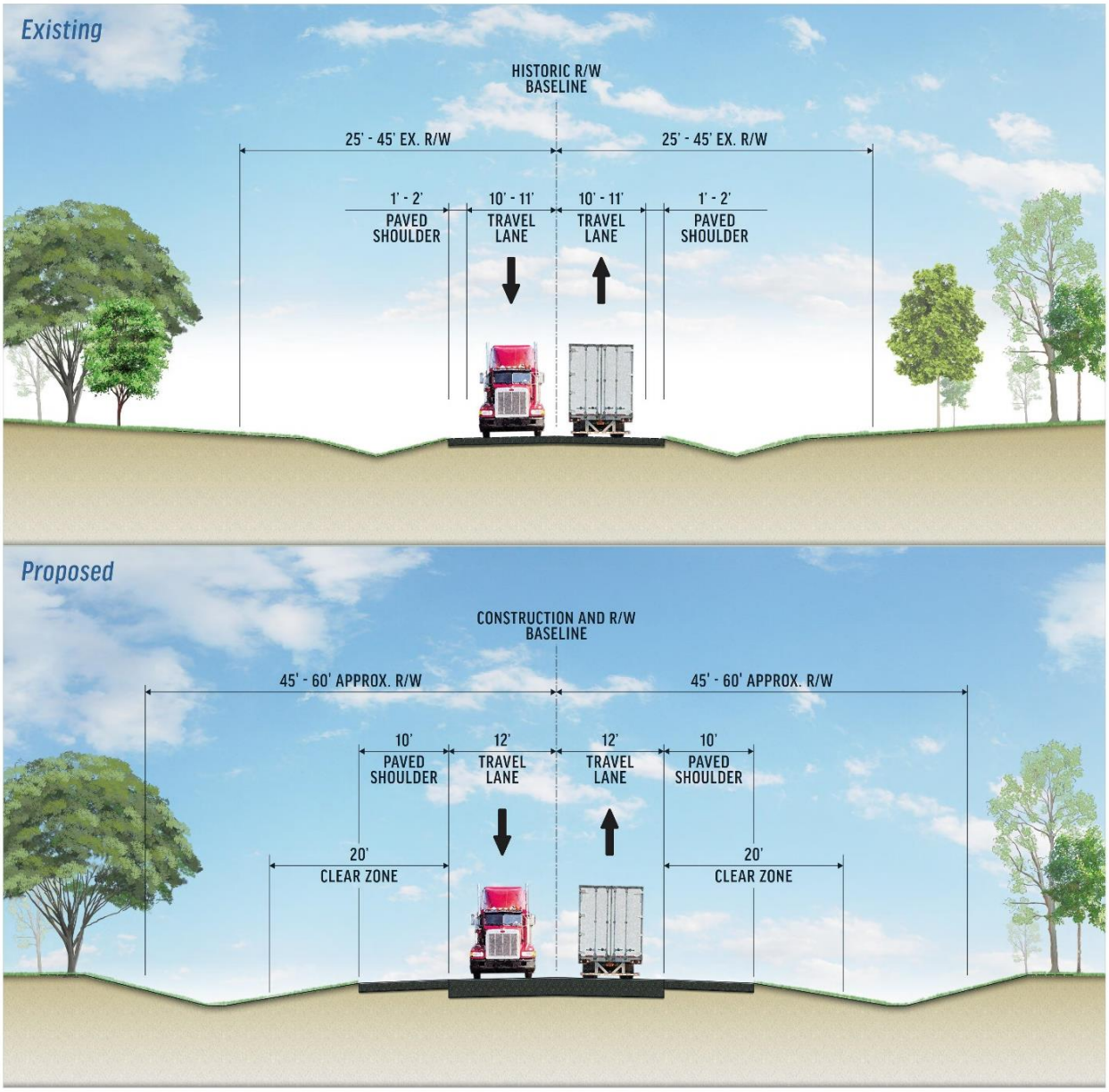


Figure 2-3: Typical Section – Existing Compared with Proposed



US Environmental Protection Agency (EPA) 404(b)(1) Guidelines state that "*no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences."* The Guidelines further state that an *"alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.*" Therefore, impacts to wetlands, streams, and jurisdictional ditches should be minimized to the greatest extent practicable, while taking into consideration constructability, cost, and the overall purpose and need. In addition, in accordance with the Delaware Forest Conservation Act (Delaware State Senate Bill #324), impacts to forests will also be minimized.

Minimize Economic Impact

Extending Runway 4/22 at the Delaware Coastal Airport would allow for greater use of the airport. As described in **Chapter 1 (Purpose and Need)**, business jet operations are projected to increase by 62 percent, charter operations are projected to increase by 32 percent, and total operations are projected to increase by 23 percent between 2002 and 2021. This growth in operations would encourage growth of businesses at the Industrial Park as well as other business and industrial uses in the area.

Because of the existing physical constraints that would need to be relocated, an extension of the Runway 22 end (the northeast end of the runway) at Delaware Coastal Airport would be impractical. According to FAA, any extension of the Runway 22 end would require the relocation of a significant portion of the existing Delaware Coast Line Railroad corridor and the rail sidings that serve the County's Industrial Park since they would be within the runway safety area (RSA) and the runway object free area (ROFA). Additionally, a large portion of the adjacent sports complex as well as three residences would need to be relocated since they would be within the central portion of the runway protection zone (RPZ). In order to extend the Runway 4 end of Runway 4/22, the relocated Park Avenue would need to be located outside of the RSA as well as the ROFA per FAA guidelines. Additionally per FAA current design standards related to RPZs, the roadway would need to be outside of the central portion of the RPZ. Per Sussex County officials, if these design standards are not met, the Airport cannot extend the runway.

2.2.3 Evaluation of Alternatives

Table 2-1 summarizes the details of each alternative and the associated impacts. Following the table is a description of each of the alternatives and how well each alternative addresses the screening criteria identified in **Figure 2-1** and described in **Section 2.2.2**.

Table 2-1: Summary of Relocation Study Alternatives and Potential Impacts

Alter-native	Length of Improvements / Truck Route Distance[1] (miles)	Properties Affected/ Displaced[2]	Wetland Impacts (Acres)	Stream/ Jurisdic-tional Ditch Impacts (Linear Feet)	Forest Impacts (Acres)	Impact to Central Portion of the RPZ?	Estimated Cost[3] (millions)	Does the Alternative Meet Purpose and Need?
No-Build	0 / 5.2	0 / 0	0	0 / 0	0	No	$0	No
Alt. 1	4.4 / 5.3	111 / 3	0.73	1,128 / 847	7.43	Yes	$36.0	No
Alt. 2	3.9 / 4.8	89 / 2	1.19	1,387 / 1,097	8.45	Yes	$33.3	No
Alt. 3	4.0 / 5.6	110 / 4	0.99	1,116 / 223	9.72	Yes	$34.0	No
Alt. 4	4.0 / 5.6	110 / 4	0.26	1,300 / 202	14.81	No	$34.8	Yes
Alt. 5	4.0 / 4.9	90 / 2	0.90	1,252 / 847	16.62	No	$34.4	Yes
Alt. 6	4.0 / 4.9	90 / 2	0.29	1,185 / 847	15.87	No	$33.8	Yes

[1] Approximate length of improvements to the truck route between US 113 and US 9 / Total truck route distance between the US 113 and US 9 intersection and the US 9 and Park Ave intersection.

[2] This total does not include the Downs property located on Park Avenue, which would be acquired by the County as part of the airport runway extension.

[3] Estimated cost includes construction, design, utility relocation, right-of-way acquisition, and estimated mitigation costs for wetlands, streams, and forest.

Source: Whitman Requardt & Associates, LLP, 2017

No-Build Alternative

Under the No-Build Alternative, no improvements to or relocation of Park Avenue would be undertaken; however, routine maintenance of the US 9 truck route would continue. The No-Build Alternative would not satisfy the identified needs of the project as it would not improve traffic operations and safety along Park Avenue. It is also inconsistent with local plans and would not accommodate growth at the Delaware Coastal Airport. The No-Build Alternative has been carried forward in this EA as a benchmark for assessing the transportation benefits and environmental impacts of Build Alternative 6, the Preferred Alternative.

Alternative 1

Alternative 1 would travel along Arrow Safety Road, to South Bedford Street to the western portion of Park Avenue. The alternative would then relocate a small portion of Park Avenue to avoid the ROFA associated with the airport expansion. However, the alternative travels through the central portion of the RPZ. These airport regulated areas are associated with the proposed growth of the Delaware Coastal Airport. The relocated portion of Park Avenue would reconnect to existing Park Avenue east of the Norfolk Southern Railroad tracks. This alternative would impact approximately 0.73 acres of wetlands and would require full acquisition of three properties and partial acquisition of 108 properties (refer to **Table 2-1**).

Alternative 2

Alternative 2 would begin at Arrow Safety Road and straighten the alignment of the truck bypass by creating an additional leg at the intersection with South Bedford Street. The alternative would then travel along a new alignment to connect to Park Avenue east of the Norfolk Southern Railroad tracks. The alternative would then relocate a small portion of Park Avenue to avoid the ROFA; however, the alternative travels through the central portion of the RPZ. These airport regulated areas are associated with the proposed growth of the Delaware Coastal Airport. This alternative would impact approximately 1.19 acres of wetlands, and would require full acquisition of two properties and partial acquisition of 87 properties (refer to **Table 2-1**).

Alternative 3

Alternative 3 would begin at the South Bedford Street intersection, approximately 3,100 feet south of Arrow Safety Road and create an additional leg at the intersection with Zoar Road. The alternative would then travel along a new alignment to connect to Park Avenue east of the Norfolk Southern Railroad tracks. The alternative would then relocate a small portion of Park Avenue to avoid the ROFA; however, the alternative travels through the central portion of the RPZ. These airport regulated areas are associated with the proposed growth of the Delaware Coastal Airport. This alternative would impact approximately 0.99 acres of wetlands, and would require full acquisition of four properties and partial acquisition of 106 properties (refer to **Table 2-1**).

Alternative 4

Alternative 4 would begin at the South Bedford Street intersection, approximately 3,100 feet south of Arrow Safety Road and create an additional leg at the intersection with Zoar Road, similar to Alternative 3. The alternative would then travel along a new alignment to connect to Park Avenue east of the Norfolk Southern Railroad tracks. This alternative is a significant distance from the ROFA and would avoid the entire RPZ associated with the proposed growth of the Delaware Coastal Airport. This alternative would impact approximately 0.26 acres of wetlands, and would require full acquisition of four properties and partial acquisition of 106 properties (refer to **Table 2-1**).

Alternative 5

Alternative 5 would begin at Arrow Safety Road and straighten the alignment of the truck bypass by creating an additional leg at the intersection with South Bedford Street, similar to Alternative 2. The alternative

would then travel along a new alignment to connect to Park Avenue east of the Norfolk Southern Railroad tracks. This alternative would be located further south than Alternative 2 in an effort to avoid the ROFA and the entire RPZ associated with the proposed growth of the Delaware Coastal Airport. Alternative 5 would impact approximately 0.90 acres of wetlands and would require full acquisition of two properties and partial acquisition of 88 properties (refer to **Table 2-1**).

Alternative 6

Alternative 6 would begin at Arrow Safety Road and straighten the alignment of the truck bypass by creating an additional leg at the intersection with South Bedford Street, similar to Alternative 2. The alternative would then travel along a new alignment to connect to Park Avenue east of the Norfolk Southern Railroad tracks. Similar to Alternative 5, this alternative would be located south of Alternative 2, in an effort to avoid the ROFA as well as the central portion of the RPZ associated with the proposed growth of the Delaware Coastal Airport, while minimizing impacts to wetlands. This alternative would impact approximately 0.29 acres of wetlands and require full acquisition of two properties and partial acquisition of 88 properties (refer to **Table 2-1**).

2.3 ALTERNATIVES ELIMINATED FROM DETAILED STUDY

Alternatives 1, 2, and 3 were eliminated from consideration as they travel through the central portion of the RPZ of the proposed extension of Runway 4. Per FAA current design standards, as well as Sussex County officials, failure to keep this area clear would prevent the extension of the runway and the associated growth at the airport. These alternatives therefore fail to meet the secondary need of the project – to support economic growth.

Although Alternative 4 meets the identified purpose and need of the project, this alternative compared with Alternatives 5 and 6 would reduce the connectivity of the truck route, adding an additional 0.7 miles to the truck route bypass. Additionaly, as compared with Alternatives 5 and 6, Alternative 4 would require the full acquisition of twice as many properties (four properties compared with two properties) and would require partial acquisition of 20 percent more properties (106 properties compared with 88 properties). Therefore, Alternative 4 was not carried forward for detailed study.

Although Alternative 5 meets the identified purpose and need of the project, this alternative compared with Alternative 6 has more than three times as many wetland impacts (0.90 acres compared with 0.29 acres); and has slightly more forest impacts (impacts to streams and jurisdictional ditch are similar for Alternatives 5 and 6). Therefore, Alternative 5 was not carried forward for detailed study.

Alternatives eliminated from detailed study:

- ***Alternatives 1, 2, and 3*** – fail to meet purpose and need (do not support economic growth).
- ***Alternative 4*** - reduces the connectivity of the truck route.
- ***Alternative 5*** – does not minimize impact to wetlands and forest.

2.4 ALTERNATIVES CARRIED FORWARD

2.4.1 No-Build Alternative

Under the No-Build Alternative, no improvements or relocation to Park Avenue would be undertaken; however, routine maintenance of the US 9 truck route would continue.

The No-Build Alternative would not satisfy the identified needs of the project as it would not improve traffic operations and safety along Park Avenue. It is also inconsistent with local plans (Town of Georgetown,

2010 and Sussex County, 2008 and 2015) and would not accommodate growth at the Delaware Coastal Airport. The No-Build Alternative has been carried forward in this EA as a benchmark for assessing the transportation benefits and environmental impacts of the Preferred Alternative.

2.4.2 Preferred Alternative

Alternative 6 addresses the stated transportation needs and is being advanced in this EA as the Preferred Alternative as it is the best build alternative capable of meeting project purpose and needs, based upon evaluation of the project's screening criteria: improve truck route connectivity, minimize right of way/displacements, and minimize impacts to wetlands, streams, jurisdictional ditches, and forest (refer to **Table 2-1**). **Figure 2-4** shows the approximate study limits of the Preferred Alternative.

This relocation would improve traffic operations by improving the roadway alignment and typical section, providing a continuous route around Georgetown, connecting US 113 west of Georgetown to US 9 east of Georgetown, and improving the Park Avenue and US 9 intersection and Park Avenue and South Bedford Street/Arrow Safety Road intersection. The Preferred Alternative is consistent with local plans (Town of Georgetown, 2010 and Sussex County, 2008 and 2015) and allows for the future growth of the Delaware Coastal Airport as proposed by Sussex County (Sussex County, 2016), thus potentially encouraging economic development in the region.

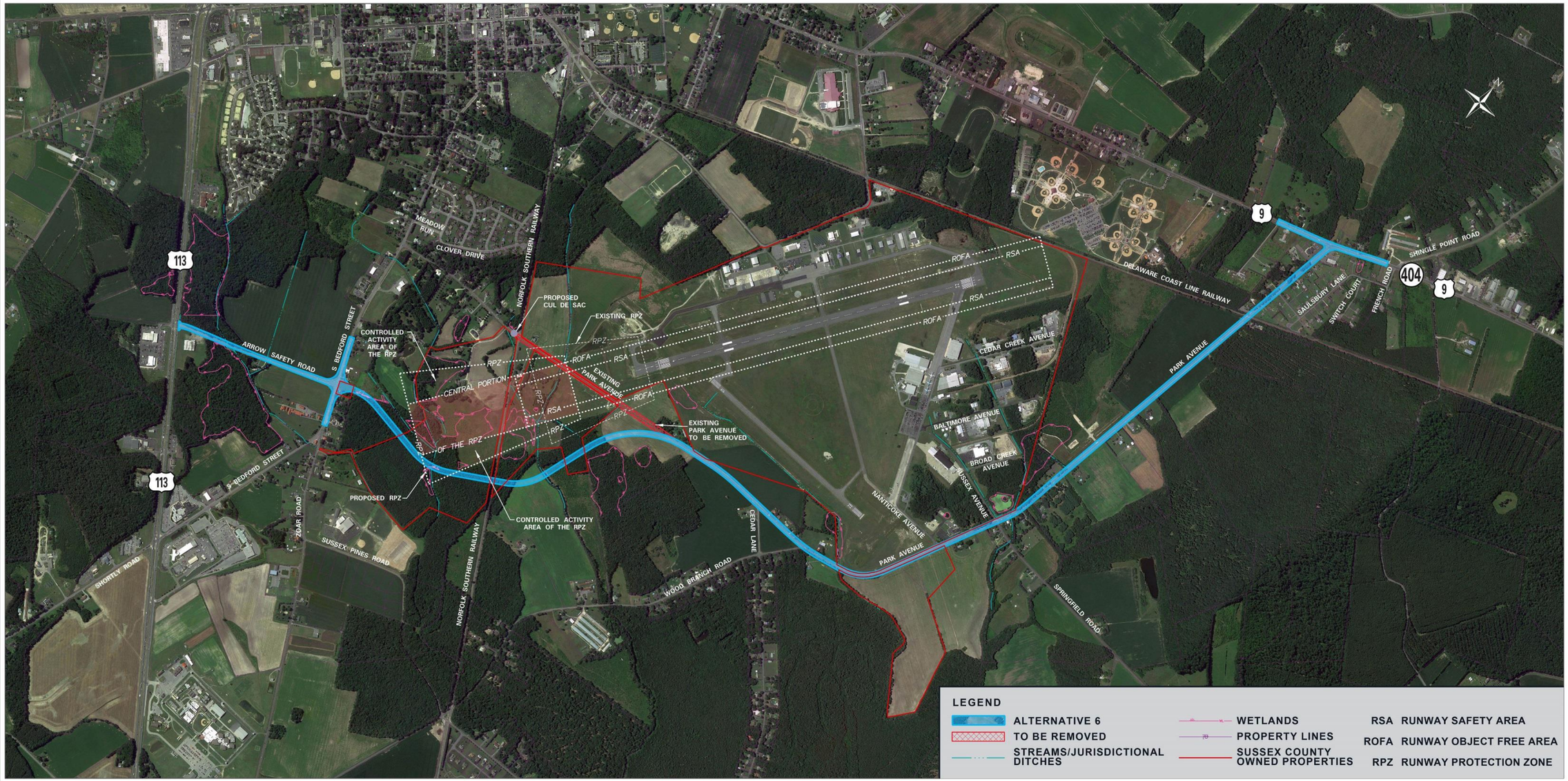
Alternatives carried forward:

- ***No Build Alternative*** – while this alternative does not meet purpose and need, it is included as a benchmark for comparison purposes with the Preferred Alternative.
- ***Alternative 6 (Preferred Alternative)*** – best build alternative capable of meeting purpose and needs, based upon evaluation criteria.

The Preferred Alternative is estimated to cost $33,830,000. This estimate includes design, utility relocation, right-of-way acquisition, construction, and mitigation of wetlands, streams, and forest.

Impacts associated with the No-Build Alternative and the Preferred Alternative are evaluated in Chapter 3 of this EA.

Figure 2-4: Preferred Alternative



Chapter 3.0 Affected Environment and Potential Impacts

3.1 INTRODUCTION AND OVERVIEW OF ENVIRONMENTAL ISSUES

Potential environmental impacts were estimated based on the Preferred Alternative's potential area of impact which is a 120-foot buffer along existing roads (Arrow Safety Road and Park Avenue) and a 140-foot buffer along the new alignment, a total area of 68 acres. The area of impact has been estimated for alternative comparison purposes and decision-making during the National Environmental Policy Act (NEPA) process, and would be refined as design advances. A complete comparative of the potential impacts of other alternatives evaluated for the project may be found in **Chapter 2 Alternatives Comparison**.

As part of the scoping and environmental analysis carried out for the project, the following environmental issues were considered but no adverse impacts were identified: demographics and neighborhoods, environmental justice, community facilities, land use, rare, threatened and endangered species and floodplains. As a result there is no further discussion about these issues in this document. Details on the analysis of these topics can be found in the **Socioeconomics, Community Facilities, and Land Use Technical Report** and the **Natural Resources Technical Report**. The following sections inventory the cultural resources, natural resources, air quality, noise, and hazardous materials within the study area and analyze the potential environmental effects, as well as the potential indirect and cumulative effects of the Park Avenue Relocation project. **Table 3-1** summarizes the potential environmental impacts of the No-Build Alternative and the Preferred Alternative.

Table 3-1: Potential Impacts of Preferred and No-Build Alternatives

Environmental Resource	Potential Environmental Impacts	
	No-Build Alternative	Preferred Alternative
Cultural Resources	0	Coordination with SHPO ongoing
Wetlands and Surface Waters	Wetland Impacts	
	0	0.29 acres
	Stream Impacts	
	0	1,185 linear feet (0.3 acres)
	Jurisdictional Ditch	
	0	847 linear feet (0.08 acres)
Tax Ditches	0	451 linear feet (0.15 acres)
Water Quality	0	Construction related impacts
Wildlife and Habitat	0	26 acres of cropland and pasture; 16 acres of vegetated/forested land
Farmland	0	30.2 acres of land identified as prime farmland soils and / or soils of statewide importance
Air Quality	0	No violation of NAAQS
Noise	0	31 residential parcels would be impacted
Hazardous Materials	0	1 controlled Recognized Environmental Condition (REC) within the potential area of impact; 1 controlled REC within 500 feet of the potential area of impact
Indirect and Cumulative Effects	0	Minimal Impacts

3.2 CULTURAL RESOURCES

This section is intended to summarize the fulfillment of the applicable requirements of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA). As such, this section would be recognized as implementing the regulations of the Advisory Council for Historic Preservation (ACHP) pursuant to 36 CFR §800. DelDOT, on behalf of FHWA, initiated project consultation in 2014 and then recently reinitiated project consultation with the Delaware State Historic Preservation Office (DE SHPO) to define the project's Area of Potential Effect (APE) and to identify potential consulting parties (refer to Appendix A). The APE is defined as those properties within the proposed Limits of Construction and the viewshed of the proposed project. DelDOT, on behalf of FHWA, has also reached out to the Federally recognized tribes and state tribes to provide them with information on the project, as well as to invite them to provide comments or share their concerns regarding the project (refer to Appendix A). For this project, DelDOT has integrated the NEPA and Section 106 processes, concurrently coordinating both efforts.

Existing information was gathered based upon a cultural resource survey that was conducted by Coastal Carolina Research, Inc. (CCR) in 2005 for the *Proposed Runway 4-22 Extension of Delaware Coastal Airport (formerly named the Sussex County Airport), the US 113 Georgetown Area Environmental Assessment,* and the Delaware Division of Historical and Cultural Affairs (DHCA) Cultural and Historic Resource Information System (CHRIS) database (CCR, 2005, DelDOT, 2014b, and Delaware DHCA, 2017). Additionally, DelDOT is currently conducting an identification and evaluation survey of any standing structures that were not previously identified and evaluated. A total of 67 standing structures were identified within the overall project APE. Of those, 27 properties (26 standing structures and 1 archaeology site) are within the immediate APE of the Preferred Alternative and have the potential to be impacted by the project. **Figure 3-1** shows those cultural resources which have been identified but not yet evaluated and which have the potential to be impacted by the Preferred Alternative. **Table 3-2** lists those resources and their property name, their Cultural Resources Survey numbers, and their National Register of Historic Places (NRHP) status.

Future Conditions

DelDOT, on behalf of the FHWA, is coordinating with the DE SHPO regarding the NRHP status of the identified standing structures and sites and about the project's effects on any historic properties that would be listed in or are eligible for listing in the NRHP.

DelDOT is committed to completing the archaeological analysis necessary to determine the NRHP eligibility of archaeological resources that may be affected by ground-disturbing activities. Additional efforts may include a Phase I analysis and consultation on the need for further investigation. Any historic properties, both above-ground and archaeological, that are identified and affected, DelDOT will make a reasonable effort to avoid these sites or to minimize impacts to them. If the affected historic properties cannot be avoided, DelDOT will apply the Criteria of Adverse Effect in accordance with 36 CFR §800.5 and traditional or alternative forms of mitigation will be utilized.

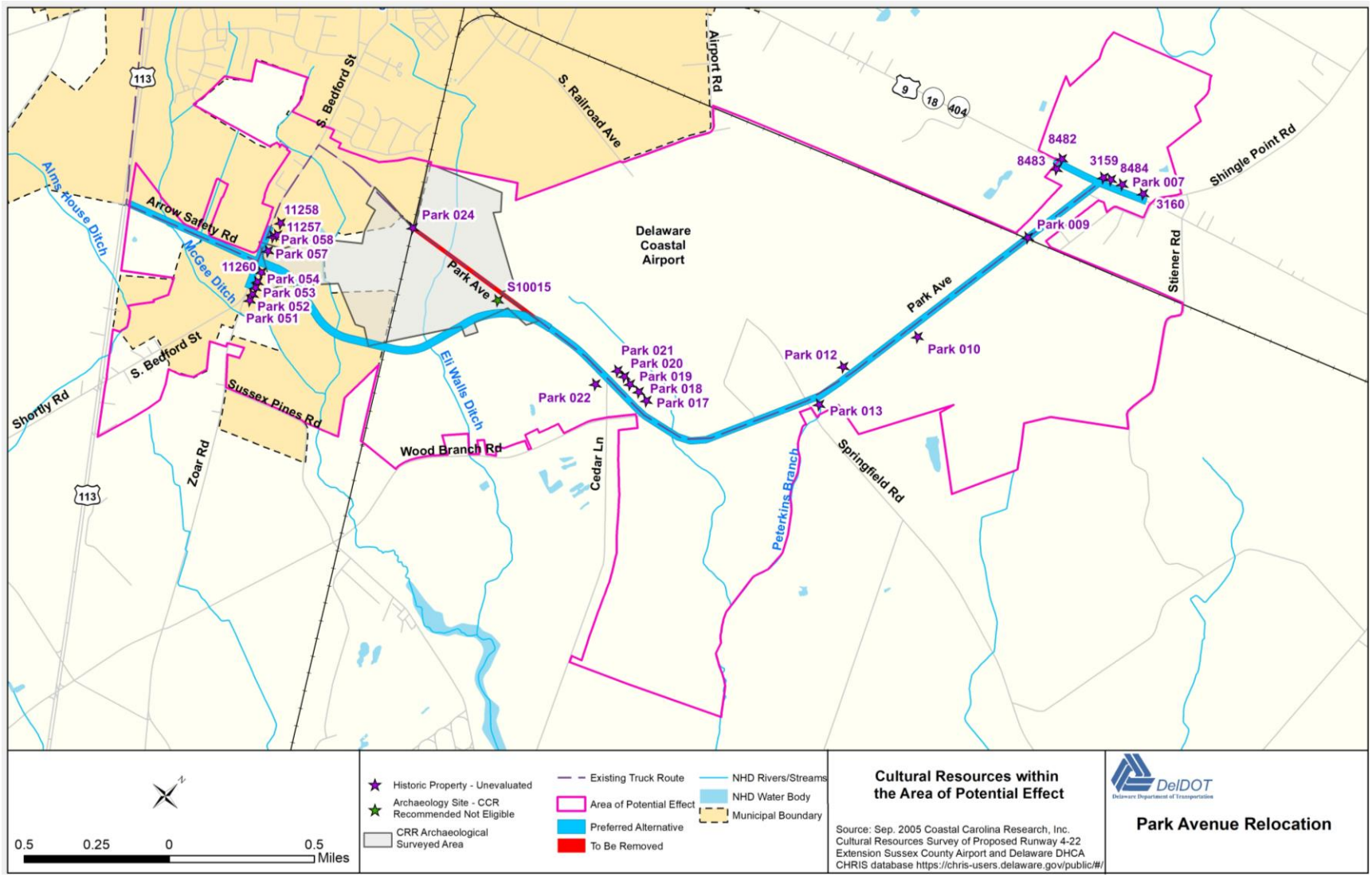
DelDOT is coordinating with SHPO and FHWA to develop a Programmatic Agreement (PA) to outline the final steps and commitments required to complete the Section 106 consultation process for the project. A signed copy of this PA will be included as an appendix to the final environmental determination. A draft copy of this PA is included as Appendix B.

Table 3-2: Identified Cultural Resources within the APE for the Preferred Alternative

Cultural Resources Survey No.	Property Name	NRHP Status
08482	Dwelling	Unevaluated
08483	Agricultural Outbuilding	Unevaluated
03159	Dwelling Complex	Unevaluated
08484	Dwelling Complex	Unevaluated
03160	Agricultural Complex	Unevaluated
11258	Dwelling	Unevaluated
11257	Dwelling	Unevaluated
11260	Dwelling	Unevaluated
Park 007	Dwelling	Unevaluated
Park 009	Breakwater & Junction Railroad	Unevaluated
Park 010	Dwelling	Unevaluated
Park012	Dwelling	Unevaluated
Park 013	Dwelling	Unevaluated
Park 017	Dwelling	Unevaluated
Park 018	Dwelling	Unevaluated
Park 019	Dwelling	Unevaluated
Park 020	Dwelling	Unevaluated
Park 021	Dwelling	Unevaluated
Park 022	Agricultural Complex	Unevaluated
Park 024	Breakwater & Frankford Railroad	Unevaluated
Park 051	Dwelling/Commercial Property	Unevaluated
Park 052	Dwelling/Commercial Property	Unevaluated
Park 053	Dwelling	Unevaluated
Park 054	Dwelling	Unevaluated
Park 057	Dwelling	Unevaluated
Park 058	Dwelling	Unevaluated
S10015	Archaeology Site	CCR Recommended Not Eligible

Source: Sep. 2005 Coastal Carolina Research, Inc. Cultural Resources Survey of Proposed Runway 4-22 Extension Sussex County Airport and Delaware DHCA CHRIS database https://chris-users.delaware.gov/public/#/

Figure 3-1: Cultural Resources Within the Area of Potential Effect



3.3 NATURAL RESOURCES

3.3.1 Wetlands and Surface Waters

The U.S. Army Corps of Engineers (USACE) administers regulatory authority over activities affecting waters of the United States (WOUS) pursuant to Section 404 of the Clean Water Act (CWA) of 1977, as amended. Section 404 of the CWA prohibits the discharge of dredged or fill material into WOUS if there is a practicable avoidance alternative. If there is no practicable avoidance alternative, a permit is required for the discharge of dredge or fill material into WOUS. A jurisdictional determination (JD) of the boundaries of wetlands and WOUS is required from USACE to support the permit application. Subsequently, the type and quantity of impacts to jurisdictional surface waters are documented in the permit application.

Additionally, in Delaware, wetlands and waters receive further protection under regulations in the State's Wetlands Act of 1973 and Subaqueous Lands Act (enacted in 1969). A permit is required from Delaware Department of Natural Resources and Environmental Control (DNREC) prior to conducting certain activities, including dredging, draining, filling, construction, drilling, and excavation, in these wetlands and waters. Furthermore, DNREC provides 401 certification (DNREC, 2017c).

An in-office review of available resource information was conducted to evaluate the potential for regulated features to occur within the study area. These data included US Geological Survey (USGS) topographic mapping, US Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping, US Department of Agriculture (USDA) Natural Resources and Conservation Service (NRCS) soils mapping and data, US Geological Survey National Hydrography Dataset (NHD) mapping, and aerial imagery.

Following the in-office review, field delineations were conducted in February 2014, March 2014, and December 2016 of the Preferred Alternative's potential area of impact to identify the location and extent of jurisdictional features. The delineation was performed in accordance with the 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0), the USACE 1987 Wetland Delineation Manual, and subsequent applicable regulatory guidance.

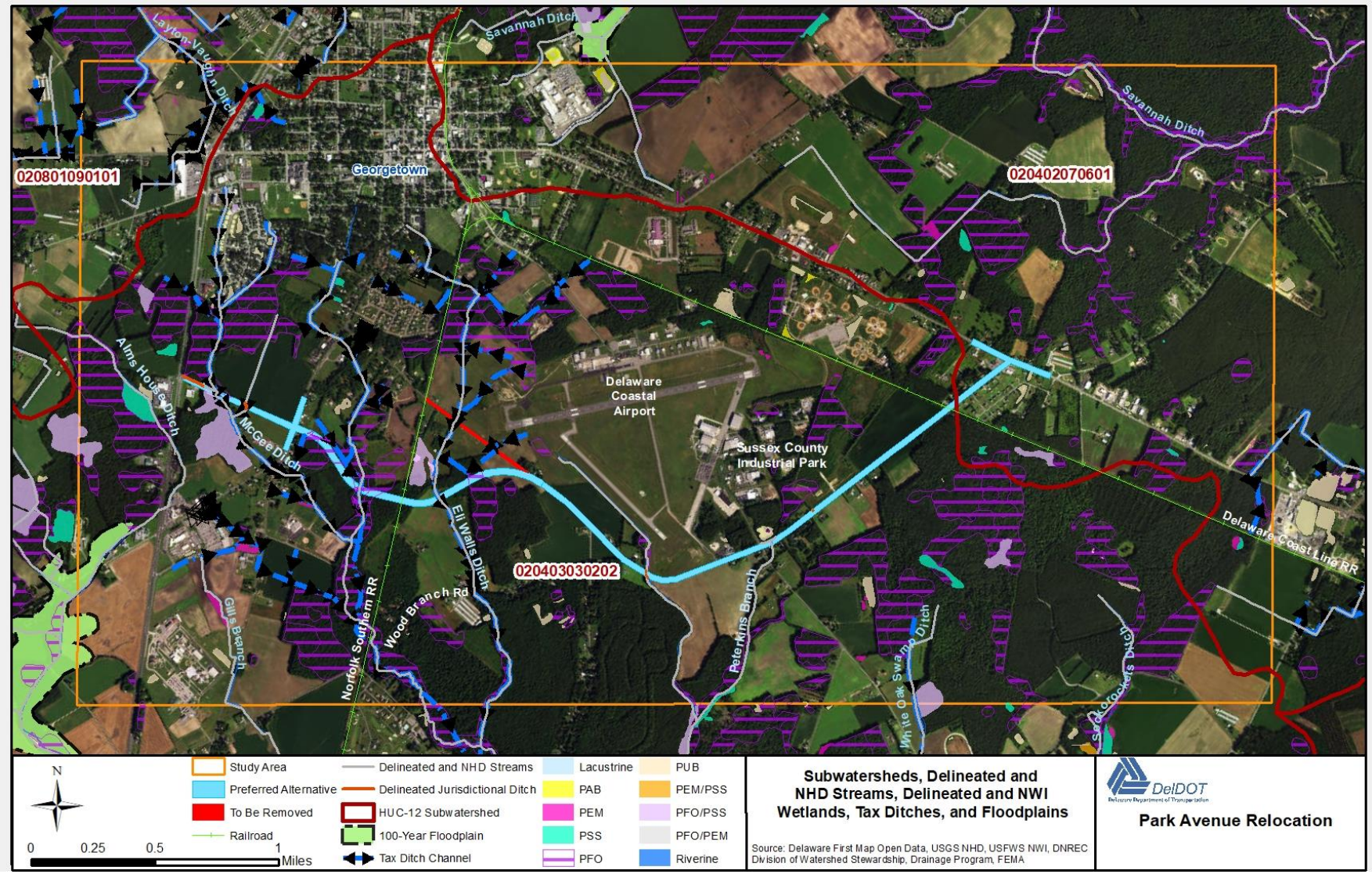
The study area is located within three subbasins, three watersheds, and three subwatersheds as summarized in **Table 3-3** and illustrated in **Figure 3-2**. Prominent perennial streams of the study area include McGee Ditch, Alms House Ditch, Gills Branch, Eli Walls Ditch, Layton-Vaughn Ditch, Peterkins Branch, Savannah Ditch, White Oak Swamp Ditch, and Sockorockets Ditch. These streams are also labeled on **Figure 3-2**. All streams within the study area ultimately flow to the Delaware Bay, Chesapeake Bay, or Atlantic Ocean.

Table 3-3: Summary of Hydrologic Unit Codes (HUC) within the Study Area

Subbasin (HUC 8)	Watershed (HUC 10)	Subwatershed (HUC 12)
Nanticoke (HUC 02080109)	Deep Creek (HUC 0208010901)	Upper Deep Creek (HUC 020801090101)
Broadkill-Smyrna (HUC 02040207)	Broadkill River – Delaware Bay (HUC 0204020706)	Round Pole Branch – Broadkill River (HUC 020402070601)
Chincoteague (HUC 02040303)	Indian River Bay (HUC 0204030302)	Cow Bridge Branch – Indian River (HUC 020403030202)

Source: USGS

Figure 3-2: Subwatersheds, Delineated and NHD Streams, Delineated and NWI Wetlands, Tax Ditches, and Floodplains



Based on the results of the desktop review and field delineation, there are approximately 1,063 acres of wetlands within the study area, including 889 acres of palustrine forested (PFO) wetlands, 22 acres of palustrine scrub shrub (PSS) wetlands, 50 acres of combined PFO/PSS wetlands, 11 acres of palustrine emergent (PEM) wetlands, 54 acres of riverine wetlands, and 37 acres of freshwater pond (palustrine unconsolidated bottom [PUB]/palustrine aquatic bed [PAB]) (refer to **Figure 3-2**).

Based on the results of the desktop review and field delineation, there are approximately 20 miles of regulated stream channels within the study area (refer to **Figure 3-2**). Many of these streams have been degraded, straightened, and ditched for agricultural practices. Approximately 0.25 miles of jurisdictional ditches were also identified within the study area.

For more information on study area wetlands, streams, and jurisdictional ditches, refer to the **Natural Resources Technical Report**.

Future Conditions

Since the No-Build Alternative would include no improvements within the study area, the No-Build Alternative would not result in impacts to wetlands, streams, or jurisdictional ditches.

Implementation of the Preferred Alternative would result in impacts to 0.29 acres of wetlands, 0.3 acres (1,185 linear feet) of streams, and 0.08 acres (847 linear feet) of jurisdictional ditches. These impacts are based on the conceptual design and may change as design progresses. Additionally, wetlands, streams, and jurisdictional ditches have not yet been confirmed by USACE and are subject to change.

Primary impacts to streams resulting from roadway construction would likely include discharges and excavation of dredged or fill material for culverted stream crossings. Secondary effects would likely include stormwater discharge from the new roadway and right-of-way.

As the design is refined, impacts to wetlands and streams would be avoided to the maximum extent practicable. The use of retaining walls and steep side slopes may be considered to avoid impacts from lateral encroachment. Compensation for any unavoidable impacts to streams and wetlands would be provided in accordance with the 2008 Compensatory Mitigation Rule (refer to **Section 3.3.5 Anticipated Permits**).

3.3.2 Tax Ditches

In 1951, the Delaware General Assembly enacted the Drainage Law to establish, finance, and maintain drainage organizations (tax ditches). Tax ditches are watershed-based organizations formed by a prescribed legal process in the Superior Court and are comprised of all landowners of a particular watershed or subwatershed. The operations of a tax ditch are overseen by ditch managers and a secretary/treasurer (DNREC, 2017b).

Tax ditches within the study area were identified using ArcGIS Online's Delaware Tax Ditch Map. The study area contains approximately 20 miles of tax ditches (refer to **Figure 3-2**). Many of the tax ditches within the study area are ditched streams.

Future Conditions

Since the No-Build Alternative would include no improvements within the study area, this alternative would have no impact on tax ditches.

The Preferred Alternative has the potential to impact approximately 0.15 acres (451 linear feet) of tax ditches. If the Preferred Alternative is constructed, DelDOT would commit to maintaining the continuity and flow of tax ditches, and would ensure maintenance activities are still possible. For more information on tax ditches in the study area, refer to the **Natural Resources Technical Report**.

3.3.3 Water Quality

As directed by Section 305(b) of the CWA, states, territories, and other jurisdictions of the United States are required to submit reports on the quality of their waters to the U.S. Environmental Protection Agency (EPA) every two years. When surface waters fail to meet water quality standards sufficient to support designated use categories, the waters are classified as "impaired waters" under Section 303(d) of the CWA. In Delaware, designated use categories include agricultural water supply; cold water fish; fish, aquatic life, and wildlife; harvestable shellfish waters; industrial water supply; primary contact recreation; public water supply; secondary contact recreation; and waters of exceptional recreational or ecological significance.

States monitor water quality, identify impairments and sources of impairments, and develop and implement Total Maximum Daily Load (TMDL) reports for those impaired waters. TMDLs are the allowable loadings or loading strategies for waterbodies classified as water quality limited. A TMDL Report is a special study to determine the amount of a pollutant that the impaired water can assimilate and still meet water quality standards.

The EPA WATERS Geospatial Dataset contains shapefiles from the 2004 Delaware Water Quality Assessment Report. **Table 3-4** depicts the impaired stream segments, impaired segment length within the study area, causes of impairments, and TMDL status for streams within the study area.

Table 3-4: Impaired Stream Segments within the Study Area

Impaired Stream Segment	Impaired Segment Length (within Study Area)	Causes of Impairment	TMDL Status
Ingrams Branch – Western Tributary	1,706 LF	Dissolved Oxygen	TMDL Completed for Ammonia and Biological Oxygen Demand
		Habitat	TMDL Needed
Deep Branch – Plus Peterkins Branch, White Oak Swamp Ditch, and Sockorockets Ditch	27,347 LF	Bacteria	TMDL Completed for Bacteria
		Dissolved Oxygen	TMDL Needed
		Nutrients	TMDL Completed for Nitrogen and Phosphorus
Eli Walls Tax Ditch	32,354 LF	Bacteria	TMDL Completed for Bacteria
		Nutrients	TMDL Completed for Nitrogen and Phosphorus
Ingrams Branch – Headwaters to Waggamans Pond	7,094 LF	Bacteria	TMDL Completed for Bacteria
		Dissolved Oxygen	TMDL Completed for Ammonia and Biological Oxygen Demand
		Nutrients	TMDL Completed for Nitrogen and Phosphorus

Source: EPA WATERS Geospatial Dataset, 2004

Future Conditions

Since the No-Build Alternative would include no improvements within the study area, this alternative would have no direct or indirect effect on water quality.

The Preferred Alternative could result in temporary impacts to water quality during roadway construction activities through increased sedimentation from land disturbing activities and the potential for occurrences of fuel spills or hydraulic spills from construction equipment. During construction, the contractor would adhere to applicable erosion and sediment control and stormwater measures and the associated required monitoring protocols, as prescribed in the current regulations. Post construction, stormwater management facilities will be used to treat runoff from the roadway in compliance with the Delaware Sediment and Stormwater Regulations. For more information on water quality, refer to the **Natural Resources Technical Report**.

3.3.4 Farmlands

The Farmland Protection Policy Act of 1981 [7 (USC) 4201] is administered by the USDA NRCS. Section 2 of the Act states that "the purpose of this act is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses, and to assure that federal programs are administered in a manner that, to the extent practicable, will be compatible with state, unit of local government, and private programs and policies to protect farmland."

Future Conditions

Since the No-Build Alternative would include no improvements within the study area, this alternative would have no impacts on farmlands or agricultural land preservation districts.

A USDA NRCS Farmland Conversion Impact Rating Form has been completed and submitted to USDA NRCS to determine impact ratings to prime farmland soils. USDA NRCS replied on July 5, 2017, noting that the area in question is not farmland, thus the Farmland Protection Policy Act (FPPA) does not apply to this project. Additionally, the Preferred Alternative would not impact the four agricultural land preservation districts within the study area; these are over 1/4 of a mile away from the Preferred Alternative. For more information about farmland within the study area, refer to the **Natural Resources Technical Report.**

3.3.5 Anticipated Permits

Permits

The Preferred Alternative would result in impacts to approximately 0.67 acres of wetlands, streams and jurisdictional ditches; however, each crossing would be less than the USACE Nationwide Permit (NWP) 14-Linear Transportation Projects 0.5-acre threshold. DelDOT met with the USACE on September 1, 2017 to discuss the project. USACE provided a preliminary determination that the project could qualify for NWP 14-Linear Transportation Projects permit.

Individual drainage areas per crossing are less than 800 acres and therefore, a DNREC Wetlands Subaqueous Lands permit is not required under Delaware Code Chapter 72, Section 7217, Special Exemption (a), as amended by Senate Bill 186.

Compensatory Wetland Mitigation

The federal and state permit programs rely on the use of compensatory mitigation to offset unavoidable aquatic impacts by replacing lost functions with replicated functions elsewhere. Appropriate mitigation is coordinated by the agencies. Compensatory mitigation would be required for permanent impacts to

streams and wetlands resulting from the project. Compensatory mitigation is typically required in the same or adjacent HUC within the same watershed and physiographic province as the impact.

Regulations providing guidance for compensatory mitigation were jointly issued by USACE and EPA and became effective in 2008. These regulations, referred to as the Mitigation Rule, established a national framework and hierarchy of preferences regarding how compensatory mitigation is addressed for project impacts to jurisdictional surface waters. The Mitigation Rule provides the following preference for compensatory mitigation options:

- Purchase of compensatory mitigation bank credits.
- Purchase of an approved in-lieu fee fund credits.
- Watershed approach based mitigation by the permittee.
- On-site mitigation/in-kind mitigation by the permittee.
- Off-site mitigation/out-of-kind mitigation by the permittee.

Should mitigation bank credits and in-lieu fee payment methods not be available to satisfy compensatory mitigation requirement, DelDOT would identify a suitable site to develop required mitigation. Delaware wetland compensation ratios are not to exceed 3:1 (Environmental Law Institute, 2010).

In accordance with the existing regulations and standard permit conditions, all areas with temporary impacts would be required to be restored to the areas' original contours and re-vegetated with the same or similar species.

Tree Mitigation

As discussed in **Section 3.4.6**, mitigation may also be required for tree impacts. According to the Title 17, Chapter I, Subchapter VII of the Delaware Code and the DelDOT Road Design Manual, removal of 10 or fewer trees for a roadway construction project would require planting at least one new tree for every tree removed. Removal of more than 10 but fewer than 50 trees for a roadway construction project would require planting two trees for each tree removed. Removal of 50 or more trees for a roadway construction project would require reforestation of at least one acre of land for every acre of trees removed.

Erosion and Sediment Control

Activities that may generate erosion and sediment are regulated under Title 7, Chapter 40 of the Delaware Code. This legislation is administered by Delaware's Sediment and Stormwater Management program, which operates within the Division of Watershed Stewardship's Drainage and Stormwater Section. The program employs a comprehensive approach to sediment control and stormwater management that includes sediment control and inspection during construction, post-construction inspection of permanent stormwater facilities, stormwater quantity and water quality control, and education/training related to stormwater (State of Delaware, 2016a).

Delaware is an authorized state under the federal National Pollutant Discharge Elimination System (NPDES) stormwater permitting programs, with the exception of pre-treatment and federal facilities. Delaware Code of Law, Title 7, Part VII, Chapter 60, "Environmental Control" provides the authority for Delaware's NPDES permits, which is carried out by the Division of Water Resources, Surface Water Discharges Section (State of Delaware, 2016a). Land-disturbing activities greater than 5,000 square feet must comply with the latest version of the Delaware Sediment and Stormwater Regulations; DelDOT Standard Construction Details; DelDOT Standard Specifications and Design Guidance for drainage, erosion, and stormwater management; and the most current version of the DelDOT Erosion and Sediment Control and Stormwater Management Design Guide, and must have a project-specific erosion, sediment,

and stormwater management plan. All regulated land-disturbing activities associated with the project, including on and off site access roads, staging areas, borrow areas, stockpiles, and soil intentionally transported from the project would be covered by the project specific erosion, sediment, and stormwater management plan. Additionally, construction activities with disturbances of one acre or greater require NPDES Construction General Permit coverage to discharge stormwater from the construction site (State of Delaware, 2016c).

3.4 AIR QUALITY

Pursuant to the Federal Clean Air Act of 1970 (CAA), the EPA established National Ambient Air Quality Standards (NAAQS) for major pollutants known as "criteria pollutants." Currently, the EPA regulates six criteria pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM), and lead (Pb). PM is divided into two particle size categories: particles with a diameter less than 10 micrometers (PM_{10}) and those with a diameter of less than 2.5 micrometers ($PM_{2.5}$). Federal actions must not cause or contribute to any new violation of any standard, increase the frequency or severity of any existing violation, or delay timely attainment of any standard or required interim milestone.

Additionally, the EPA identified nine compounds with significant contributions from mobile sources that are among the national and regional-scale cancer drivers from their 1999 National Air Toxics Assessment. FHWA considers these compounds the priority mobile source air toxics (MSATs) and has developed a tiered approach for assessing MSATs in NEPA documents.

Project-level analyses for highway projects typically consist of evaluations of CO, PM, and MSATs. Since the project is located in an attainment area for PM, Transportation Conformity does not apply and only CO and MSATs were evaluated. The methodologies and assumptions used in the analysis for each pollutant are consistent with FHWA and EPA guidance. Traffic forecasts for the Study Alternatives were developed for the Existing (2014) and Design Year (2040) Preferred and No-Build Alternatives. The complete methodology and evaluation is documented in the **Air Quality Technical Report**.

Future Conditions

Analysis for potential impacts for CO was conducted for the roadway and associated intersections that might be impacted by the project. Comparison of average annual daily volumes and peak hour Level of Service (LOS) were conducted for the No-Build and Preferred Alternative. Though redistribution of traffic is expected, daily traffic volumes, including diesel vehicles are essentially the same if not lower and LOS and delay times will be the same or reduced at many locations compared to the No-Build Alternative, resulting in more efficient vehicle travel and reduced idling time through the intersections. Therefore, it can reasonably be concluded the project is not expected to increase CO emissions or impacts compared to the No-Build Alternative. With these conclusions coupled with monitored CO background values in the area being well below the NAAQS, the project is not expected to significantly impact air quality and would not cause or contribute to a new violation of the CO NAAQS.

As the Preferred Alternative is not anticipated to add significant capacity to the existing and/or proposed new roadway networks, where design year traffic is projected to be 140,000 to 150,000 annual average daily traffic (AADT) or greater, the Preferred Alternative is best characterized as a project with "Low Potential MSAT Effects" under the 2016 FHWA interim guidance update document. As such, a qualitative MSAT analysis was conducted to assess MSAT emissions. In general, based on the forecast AADT, MSAT emissions associated with the Preferred Alternative are expected to remain the same when compared to the No-Build Alternative. Because the estimated AADT under each of the Alternatives are nearly the same, it is expected there would be no appreciable difference in overall MSAT emissions between the design year Alternatives. In addition, regardless of the alternative chosen, EPA's vehicle and fuel regulations are

expected to result in significantly lower MSAT levels in the future than exist today due to cleaner engine standards coupled with fleet turnover.

The temporary air quality impacts from construction activities are not expected to be significant and consist primarily from diesel powered construction equipment and fugitive dust. Construction activities will be performed in accordance with DelDOT's Road Design Manual. The specifications require compliance with all applicable local, state, and federal regulations. Measures will also be taken to minimize exposed earth by stabilizing with grass, mulch, pavement, or other cover as early as possible, applying water as a dust-stabilizing agent to working or haulage areas, covering, shielding, or stabilizing of stockpiled materials as necessary, and the use of covered trucks.

3.5 NOISE

Existing (2014) and design-year (2040) traffic noise conditions for the No-Build Alternative and the Preferred Alternative were analyzed using the FHWA's Traffic Noise Model v 2.5 (TNM) and compared to the FHWA Noise Abatement Criteria (NAC) to determine whether noise impacts could occur at identified noise study areas (NSAs) in the project area.

DelDOT noise policy requires that a noise assessment be completed to evaluate the impacts of traffic noise in the project area for the Park Avenue relocation improvement project. Where noise impacts are identified, feasibility and reasonableness of noise abatement must be evaluated.

The noise analysis was based upon the design information developed during the conceptual engineering phase of project development, and followed the current DelDOT Highway Transportation Noise Policy (DelDOT, 2011). Existing (2014) worst-case traffic conditions were used to establish existing ambient noise levels at the NSAs.

Future Conditions

Based upon the TNM Model results, the No-Build Alternative would have no impacts.

The Preferred Alternative would impact 31 residential parcels. Given the right-of-way limitations and driveway access requirements, it was determined that it would not be feasible and reasonable to construct a noise wall in any of the impacted NSAs. Driveway access to the residences would require gaps in the barriers and therefore limit the effectiveness of barriers. Berm mitigation was also considered, however, berms are also not feasible due to driveway access and right of way constraints.

In addition, construction activity may cause intermittent fluctuations in noise levels. During the construction phase of the project, all reasonable measures would be taken to minimize noise impact from these activities. Refer to the **Noise Technical Report** for the complete methodologies, evaluation procedures, and findings.

3.6 HAZARDOUS MATERIALS

To identify and assess hazardous materials potentially effecting or affected by the Preferred Alternative under evaluation, Environmental Data Resources, Inc. (EDR) was utilized to perform a search of federal and state regulatory agency databases within a ½-mile radius from the center line of the proposed roadway to identify sites with potential Recognized Environmental Conditions (RECs). Refer to the **Hazardous Materials Technical Report** for the methodology, database findings, and conclusion.

Future Conditions

The No-Build Alternative would not disturb soil or groundwater that might have been impacted by any of the Controlled RECs.

The Preferred Alternative has the potential to encounter subsurface contamination during construction from two Controlled RECs. The Sussex County Fire Marshall property would be within the right of way of the Preferred Alternative and the Controlled REC that is approximately 250 feet from the Preferred Alternative, First State Chevrolet. While the Controlled RECs are listed as case closed, there is the potential that these previously reported releases or spills may have impacted soil and/or groundwater within the project area.

Prior to or during right of way acquisition, a Phase I Environmental Site Assessment (ESA), consistent with the American Society for Testing and Materials (ASTM) method E1527-13 is recommended. Findings from the ASTM Phase I ESA would be used to determine the applicability for a Phase II ESA (ASTM E1903-11). Any necessary remediation would be conducted in compliance with federal and state environmental laws and would be coordinated with the EPA, DNREC, and other regulatory agencies, as necessary. The handling and disposal of contaminated materials by the contractor would comply with DelDOT Specification #202560 to ensure handling is consistent with state and federal regulations.

3.7 INDIRECT AND CUMULATIVE EFFECTS

3.7.1 Indirect Effects

According to the Council on Environmental Quality (CEQ), indirect effects are "…effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems" (40 CFR §1508(a)).

Indirect effects may include changes in the location and timing or rate of planned development in the vicinity of the new alignment. The improved truck route may result in future zoning change requests for higher density developments in areas not currently zoned for such development. However, the area surrounding the Preferred Alternative is already designated as municipality, developing, or planned industrial growth areas; therefore, any development would keep with the growth plans of the County (Sussex County, 2008).

Potential indirect impacts to wetlands and surface waters; tax ditches; water quality; floodplains; and wildlife habitat could result from increased stormwater runoff due to increases in impervious surfaces. Implementation of strict erosion and sediment control and stormwater measures during construction would minimize permanent and temporary impacts to waters, and thereby minimize indirect effects as well. Additional indirect effects could include alteration of hydrology, changes in vegetative composition due to changes in light and hydrologic regimes, and loss of habitat. Indirect effects to wildlife could be related to wildlife corridor fragmentation, increased noise, potential for animal-vehicle collisions, and potential for oil spills.

An anticipated indirect effect is the extension of Delaware Coastal Airport's Runway 4/22, which cannot occur without the construction of the project. These anticipated business jet operation increases are anticipated to create the need for additional hangars, which would likely lead to increased traffic, jobs, and general economic development to the area. This expansion would also allow for further development of the property in the vicinity of the airport which could also lead to increases in traffic along the truck route, as well as any associated increases in noise levels. Further development in the area could add to the indirect effects to vegetative composition, wetlands, and floodplains, as well as increased forest

fragmentation. Current federal, state, and local regulations and conservation efforts should lessen the effects of such development.

3.7.2 Cumulative Effects

CEQ defines cumulative effects (or impacts) as "…the impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR §1508.7).

While the Town of Georgetown was established in 1791, the completion of Routes 9 and 113 in the 1920s and the development of the airport in the 1940s, has opened up the area outside of Georgetown to industrial development. A bypass was later designed in 1983 to divert truck traffic around the narrow streets of Georgetown.

The Town of Georgetown has shown an increase in growth since the 1980s and is expected to continue to grow. To support this anticipated increase in population, the area surrounding the existing Georgetown boundaries has been identified as a growth area and for potential annexation, anticipating future development (Sussex County, 2008). The change in Federal Aviation Administration (FAA) regulations and the initial expansion of Delaware Coastal Airport's Runway 4/22 has previously impacted the forested areas within the Runway Protection Zone (RPZ).

Potential future development in the area is an economic development strategy identified by the *Sussex County Comprehensive Plan Update*, while the *Town of Georgetown Draft Comprehensive Plan* suggests that "ready to build" sites should be developed in the vicinity of the project (Sussex County, 2008 and Town of Georgetown, 2010). Additional future projects that could occur in the vicinity of the study area include the widening of Route 113 in Millsboro and Ellendale, to the south and north of the study area. The past, present, and potential future developments would likely not have a cumulative adverse effect on socioeconomic or cultural resources due to consistency with locality plans and minimization efforts. The past, present, and future developments would cumulatively effect the natural environment due to forest clearing and fragmentation and associated impacts on wildlife, wetland and stream impacts, and floodplain impacts.

To address the role of the potential project impacts on natural resources, there will be enhancement and restoration of waterway functions and values where possible. Strategies to be considered in consultation with the USACE and DNREC include channel restoration, removal of invasive plant species, and reintroduction of native plant materials.

Chapter 4.0 Agency and Public Coordination

Pursuant to 23 CFR 771.111 and the Council on Environmental Quality (CEQ)'s *Memorandum for General Counsels, NEPA Liaisons, and Participants in Scoping*, the Delaware Department of Transportation (DelDOT), in cooperation with Federal Highway Administration (FHWA), has coordinated extensively with local, state, and federal entities, as well as engaged in public involvement efforts throughout the development of the Park Avenue Relocation project in order to provide information and solicit feedback. The feedback received in response to these coordination efforts was used to inform the study.

4.1 AGENCY COORDINATION

4.1.1 Resource Agency Scoping Meeting – April 28, 2016

A resource agency scoping meeting was held on April 28, 2016. This meeting was held to discuss the issues associated with each alternative, and to identify any resource agency concerns associated with the project. Representatives from the U.S. Environmental Protection Agency (EPA), the State Historic Preservation Office (SHPO), Delaware Department of Natural Resources and Environment Control (DNREC), as well as DelDOT and FHWA were in attendance. The following is a synopsis of agency comments based on conversations at the meeting:

- SHPO identified a residence near the airport that looked like it may be historic, requesting that the design be evaluated to determine if the residence would be impacted, and if so, could the roadway be shifted to avoid impact. Subsequently, the architectural survey prepared for the expansion of the airport was reviewed. As described in **Section 3.3 (Cultural Resources)**, the identified residence, the VanAuken/Wilson Farm, has been determined to be not eligible for the National Register of Historic Places due to alterations (CCR, 2005). Even though the residence is not historic the design has been reviewed and the residence itself would not be impacted; although some frontage would be required to widen the roadway.
- DNREC noted that there was an exemption from DNREC Subaqueous Lands permitting for State and County projects where stream crossing impacts are less than 800 acres.
- DNREC mentioned that a past Airport project created a meadow habitat that could be near the project alternatives. DNREC would provide plans to evaluate this. These plans were later evaluated and it was determined that the project alternatives would not impact the newly created meadow habitat.
- DNREC also asked about coordination with the airport. DelDOT discussed their plans to meet with the airport prior to the proposed public workshop. DelDOT subsequently invited representatives of the airport and Sussex County to the March 2017 quarterly meeting to discuss the alternative development and screening criteria.
- EPA requested that DelDOT clarify how the study area was developed and how alternatives were chosen for analysis. This information was shared with the study team at subsequent agency meetings and has been incorporated into **Chapter 1 (Purpose and Need)**.

4.1.2 Other Agency Coordination

Subsequent to the scoping meeting, DelDOT received input from local, state, and federal agencies during quarterly agency meetings as well as other meetings and discussions identifying transportation needs,

environmental resources, and other relevant factors to be analyzed in this Environmental Assessment (EA). Input was received on behalf of the following agencies (refer to **Appendix A: Agency Correspondence**):

- The Federal Aviation Administration (FAA) provided their opinion that because of the existing physical constraints that would need to be relocated, an extension of the Runway 22 end (the northeast end of the runway) at Delaware Coastal Airport would be impractical. According to FAA, any extension of the Runway 22 end would require the relocation of a significant portion of the existing Delaware Coast Line Railroad corridor and the rail sidings that serve the County's Industrial Park since they would be within the runway safety area (RSA) and the runway object free area (ROFA). Additionally, a large portion of the adjacent sports complex as well as three residences would need to be relocated since they would be within the central portion of the runway protection zone (RPZ). Therefore, all of the alternatives allow for the extension of the Runway 4 end of Runway 4/22.
- Sussex County officials noted that if the project was not able to meet the design standards, of locating the roadway outside of the ROFA, then the Airport would not be allowed to extend the runway.
- U.S. Department of the Interior, Fish and Wildlife Service (USFWS) noted that the federally threatened swamp pink (*Helonias bullata*) has been documented to occur in the project area and recommended that any wetlands to be affected by the project should be surveyed for the presence of swamp pink by a professional botanist. USFWS also noted that the project must be designed to minimize impacts to hydrologic changes, siltation, and runoff (quantity and quality) on the watershed. Subsequent to receiving this notice, the potentially affected wetlands were surveyed by a professional botanist. No swamp pink individuals were found and the wetlands within the project study area were determined to be unsuitable for swamp pink.
- Additionally, USFWS noted their concern with wetlands protection, stating that federal and state partners of the Chesapeake Bay Program have adopted an interim goal of no overall net loss of the Basin's remaining wetlands, and the long term goal of increasing the quality and quantity of the Basin's wetlands resources base, and therefore recommends avoiding wetland impacts. As such, the effects on wetlands have been incorporated into the alternative development and screening process described in **Chapter 2 (Alternatives Comparison)**.
- DNREC noted that no seasonal fisheries restrictions would be requested for this project.
- DNREC's Wildlife Species Conservation and Research Program (WSCRP) noted that the proposed alignment alteration may cut through or be adjacent to forested areas that are contiguous with the Doe Bridge Natural Area which is a State Natural Area. WSCRP recommended that all practicable effort be made to minimize tree removal, especially in locations that are off the alignment of existing roads. As such, the effects on forest have been incorporated into the alternative development and screening process described in **Chapter 2 (Alternatives Comparison)**.

4.2 PUBLIC COORDINATION

4.2.1 Public Workshop – June 13, 2016

A Public Workshop was held on June 13, 2016 to discuss the project with the public and to obtain input regarding the three alternatives that were under consideration at that time (Alternatives 1, 2, and 3), as well as alternatives that had not yet been considered. Twenty five (25) members of the public attended the workshop. The following is a synopsis of public comments based on conversations at the meeting and comment forms submitted to DelDOT:

- Homeowners along Park Avenue from the Park Avenue/Lewes-Georgetown Highway (US 9) intersection moving west toward Springfield Road expressed concern over the widening of Park Avenue and its impacts to the frontage of their properties. Other homeowners along this section as well as other non-residents of Park Avenue commented that they felt widening to add the appropriate shoulders was needed.
- Of the build alternatives shown at the meeting, Alternative 2 received the most positive feedback. The No-Build Alternative received significant support from residents located on Park Avenue north of Springfield Road. These residents preferred an alternative that would remove truck traffic from Park Avenue completely, using a new alignment to tie in to the existing DelDOT road network further east. A northern alignment was also proposed by other attendees.

4.2.2 Public Workshop – August 8, 2016

A second Public Workshop was held on August 8, 2016. This workshop presented the same information that was presented at the first workshop, and was intended to accommodate those residents that were unable to attend the first workshop. Forty-one members of the public attended the workshop. The following is a synopsis of public comments based on conversations at the meeting and comment forms submitted to DelDOT:

- Concerns regarding the widening of Park Avenue into property frontage were reiterated. Septic impacts were noted as a potential concern.
- Of the three alternatives that were presented to the public (Alternatives 1, 2, and 3), Alternative 2 received the most positive feedback due to its connectivity between US 113 and US 9. A Park Avenue realignment near US 9 was suggested which would tie into US 9 at the French Road/Shingle Point Road intersection. This suggestion was not incorporated into an alternative due to the increase in forest and wetland impacts and takings that would occur with this additional realignment of Park Avenue.

4.2.3 Public Workshop – October 18, 2017

A third Public Workshop was held on October 18, 2017. This workshop presented the preferred alternative to the public. Fifty-two members of the public attended the workshop. The following is a synopsis of public comments based on conversations at the meeting and comments submitted to DelDOT:

- Concerns regarding the widening of Park Avenue into property frontage were reiterated. Septic impacts were noted as a potential concern.
- Delaware Motor Transport Association, Inc. expressed their support for the preferred alternative noting that the current US 9 truck bypass is landing in standard roadway features for the truck traffic using it and that the safety features proposed in the preferred alternative are long overdue.
- The Preferred Alternative received positive feedback, although one commenter preferred Alternative 2 noting concern with impacts to private property, and one commenter was concerned about the improvements to the intersection of Park Avenue at US 9 and how it would affect the Sussex County Realtors parcel.

Chapter 5.0 References

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Appendix A – Agency Correspondence

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, Maryland 21401
http://www.fws.gov/chesapeakebay

April 19, 2017

Whitman Requardt and Associates
9030 Stony Point Parkway, Suite 220
Richmond, VA 23235

RE: Park avenue Relocation NRTR

Dear Emily Drahos:

This responds to your letter, received January 24, 2017, requesting information on the presence of species which are federally listed or proposed for listing as endangered or threatened within the above referenced project area. We have reviewed the information you enclosed and are providing comments in accordance with section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

The federally threatened swamp pink *(Helonias bullata)* has been documented to occur in the project area. Swamp pink is a perennial wildflower that inhabits a variety of freshwater wetlands, including spring seepages, swamps, bogs, wet meadows and margins of small streams. We recommend that any wetlands to be filled or otherwise affected by the proposed project be surveyed for the presence of swamp pink by a professional botanist. Enclosed is a list of qualified individuals who have experience with swamp pink surveys. Even if no direct effects to potential swamp pink habitat are identified, any projects on this property must be designed to minimize impacts of hydrologic changes, siltation, and runoff (quantity and quality) on the watershed. Any such potential impacts on swamp pink habitat should be analyzed as a part of your environmental assessment. If such impacts may occur, further Section 7 consultation with the U.S. Fish and Wildlife Service may be required.

Except for occasional transient individuals, no other federally proposed or listed endangered or threatened species are known to exist within the project impact area. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

This response relates only to federally protected threatened or endangered species under our jurisdiction. For information on the presence of other rare species, you should contact Lori Byrne of the Maryland Wildlife and Heritage Division at (410) 260-8573.

Effective August 8, 2007, under the authority of the Endangered Species Act of 1973, as amended, the U.S. Fish and Wildlife Service (Service) removed (delist) the bald eagle in the lower 48 States of the United States from the Federal List of Endangered and Threatened Wildlife. However, the bald eagle will still be protected by the Bald and Golden Eagle Protection Act, Lacey Act and the Migratory Bird Treaty Act. As a result, starting on August 8, 2007, if your project may cause "disturbance" to the bald eagle, please consult the "National Bald Eagle Management Guidelines" dated May 2007.

If any planned or ongoing activities cannot be conducted in compliance with the National Bald Eagle Management Guidelines (Eagle Management Guidelines), please contact the Chesapeake Bay Ecological Services Field Office at 410-573-4573 for technical assistance. The Eagle Management Guidelines can be found at: **http://www.fws.gov/northeast/ecologicalservices/pdf/NationalBaldEagleManagementGuidelines.pdf**

In the future, if your project can not avoid disturbance to the bald eagle by complying with the Eagle Management Guidelines, you will be able to apply for a permit that authorizes the take of bald and golden eagles under the Bald and Golden Eagle Protection Act, generally where the take to be authorized is associated with otherwise lawful activities. This proposed permit process will not be available until the Service issues a final rule for the issuance of these take permits under the Bald and Golden Eagle Protection Act.

An additional concern of the Service is wetlands protection. Federal and state partners of the Chesapeake Bay Program have adopted an interim goal of no overall net loss of the Basin's remaining wetlands, and the long term goal of increasing the quality and quantity of the Basin's wetlands resource base. Because of this policy and the functions and values wetlands perform, the Service recommends avoiding wetland impacts. All wetlands within the project area should be identified, and if construction in wetlands is proposed, the U.S. Army Corps of Engineers, Baltimore District, should be contacted for permit requirements. They can be reached at (410) 962-3670.

We appreciate the opportunity to provide information relative to fish and wildlife issues, and thank you for your interest in these resources. If you have any questions or need further assistance, please contact Andy Moser at (410) 573-4537.

Sincerely,

G. LaRouche

Genevieve LaRouche
Supervisor

USDA

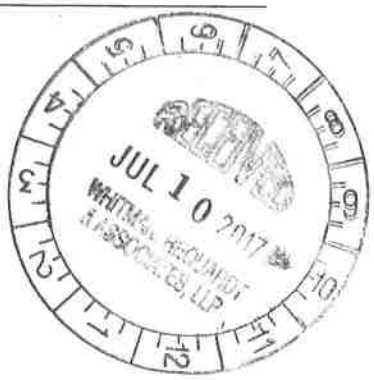
United States Department of Agriculture

Natural Resources
Conservation Service

Delaware State Office

1221 College Park
Drive, Suite 100
Dover, DE19904
Voice 302.678-4160
Fax 855.389.3386

July 5, 2017



Laura Callens, PWD, CFM
Senior Project Environmental Scientist
801 South Caroline Street
Baltimore, MD 21231

Subject: FPPA review

Reference: Park Avenue Relocation Study Project #: T201304601

Dear Laura Callens,

NRCS received your request to conduct an FPPA review for Park Avenue Relocation Study.

In regards to prime farmland and farmland of state wide important, FPPA does not apply in this situation.

The area is question is not "Farmland".

"Farmland" does not include land already in or committed to urban development or water storage.

Therefore, FPPA does not apply to this project.

However, it should be noted that large area of hydric soils do occur in all six proposed routes. Therefore it is incumbent upon you to determine if jurisdictional wetlands occur in your project area. If they do, you will need to get approval from ACOE and subsequent permits before construction operations can commence.

If you have any questions, or are in need of further assistance, please call.

Respectfully Submitted,

PSC

Phillip S. King
State Soil Scientist
DE/MD/DC

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
DIVISION OF FISH & WILDLIFE
89 Kings Highway
Dover, Delaware 19901

OFFICE OF THE DIRECTOR

Phone: (302) 739-9910
Fax: (302) 739-6157

January 6, 2015

Ms. Therese Fulmer
800 Bay Road
PO Box 778
Dover, DE 19903

Re: Park Avenue Relocation project

Dear Ms. Fulmer:

Thank you for contacting the Wildlife Species Conservation and Research Program (WSCRP) about information on rare, threatened and endangered species, unique natural communities, and other significant natural resources as they relate to the proposed relocation of Park Avenue in Georgetown.

A review of our database indicates that there are currently no records of state-rare or federally listed plants, animals or natural communities at this project site. As a result, at present, this project does not lie within a State Natural Heritage Site, nor does it lie within a Delaware National Estuarine Research Reserve which are two criteria used to identify "Designated Critical Resource Waters" in the Army Corps of Engineers (ACOE) Nationwide Permit General Condition No. 22. A copy of this letter shall be included in any permit application or pre-construction notification submitted to the Army Corps of Engineers for activities on this property.

Forest Impacts
The proposed alignment alteration may cut through or be adjacent to forested areas that are contiguous with the Doe Bridge Natural Area. State Natural Areas are composed of areas of land and/or water, whether in public or private ownership, which have retained or reestablished its natural character (although it need not be undisturbed), has unusual flora or fauna, or has biotic, geological, scenic or archaeological features of scientific or educational value. WSCRP recommends that all practicable effort be made to minimize tree removal, especially in locations that are off the alignment of existing roads.

We are continually updating our records on Delaware's rare, threatened and endangered species, unique natural communities and other significant natural resources. If the start of the project is delayed more than a year past the date of this letter, please contact us again for the latest information.

Sincerely,

Matthew Bailey

Matthew Bailey
DelDOT Environmental Review Coordinator
(302) 735-8677
(302) 382-4151 cell
matthew.bailey@state.de.us

Wills, Robert

From: Stetzar, Edna (DNREC) <Edna.Stetzar@state.de.us>
Sent: Thursday, June 19, 2014 3:55 PM
To: Callens, Laura; Bailey, Matthew (DNREC)
Cc: Spadafino, George (DelDOT); Caruano, John (DelDOT); Fulmer, Terry (DelDOT); Ford, Joy (DelDOT); Wills, Robert; Nies, Nicholas; Mielke, Matthew
Subject: RE: NORMAL: Park Avenue Relocation Project, DelDOT Contract #T201304601

Hi All-No seasonal fisheries restrictions are requested for this project. A review of the potential impacts to rare, threatened and endangered species, unique natural communities, and other significant natural resources will be provided by Matt Bailey (Species Conservation and Research Program) in a separate document or e-mail.

Thanks for the opportunity to review this project,
Edna

Edna J. Stetzar
Fish and Wildlife Biologist
DNREC-Division of Fish and Wildlife
4876 Hay Point Landing Rd
Smyrna, DE 19977
(302) 735-8654
Edna.Stetzar@state.de.us

From: Callens, Laura [mailto:lcallens@wrallp.com]
Sent: Tuesday, June 17, 2014 3:32 PM
To: Bailey, Matthew (DNREC); Stetzar, Edna (DNREC)
Cc: Spadafino, George (DelDOT); Caruano, John (DelDOT); Fulmer, Terry (DelDOT); Ford, Joy (DelDOT); Wills, Robert; Nies, Nicholas; Mielke, Matthew
Subject: NORMAL: Park Avenue Relocation Project, DelDOT Contract #T201304601

Dear Matt and Edna,

This email is being submitted for your information regarding an upcoming DelDOT project. A brief description of the proposed work to occur at this location is as follows:

Park Avenue Relocation Project (Contract T201304601) (maps and photos attached): The Delaware Department of Transportation (DelDOT), in cooperation with the Federal Highway Administration (FHWA) as the lead federal agency, is initiating the subject project. On behalf of DelDOT, Whitman, Requardt and Associates, LLP (WR&A) is preparing an Environmental Assessment (EA) pursuant to the National Environmental Policy Act of 1969, as amended, (NEPA) and in accordance with FHWA regulations, to analyze the potential social, economic, and environmental effects associated with the proposed project.

The proposed project consists of relocating and upgrading US 9 (Park Avenue). The improvements begin at the intersection of South Bedford Street and Arrow Safety Road, relocating Park Avenue about 2,400 feet to the east of the current Park Avenue/South Bedford Street intersection. In addition to the relocation, the project includes the addition of shoulders and turn lanes where appropriate along Arrow Safety Road and Park Avenue

up to the intersection with US 9. Intersection improvements to provide appropriate turn lanes and signalization at the Park Avenue intersections with South Bedford Street and US 9 would also be incorporated. The US 9 Truck Route from US 9 to US 113 would then be along Park Avenue and Arrow Safety Road thereby eliminating the designation along South Bedford Street. The project alignment crosses multiple streams: McGee Ditch, Eli Walls Ditch, Peterkins Branch, and an unnamed tributary to Peterkins Branch.

Federal and/or State involvement for this project includes Section 404 CWA permitting and NEPA documentation. Please forward any information or records that you may have regarding the presence of rare, threatened or endangered species within the project area to the above address. In addition to the rare species information, please forward any information that you may have regarding State Natural Heritage Sites, Delaware Natural Estuarine Research Reserves, and Fisheries.

If you have any questions or require additional information please do not hesitate to call me at 443-224-1633. Thank you for your assistance; we look forward to working with your agency to successfully complete this project.

Thank you,

Laura C. Callens, CFM| *Project Environmental Scientist*

Whitman, Requardt & Associates, LLP

801 South Caroline Street

Baltimore, MD 21231

(Direct) 443.224.1633

lcallens@wrallp.com

www.wrallp.com

Appendix B – Draft Programmatic Agreement

PROGRAMMATIC AGREEMENT (PA)

AMONG THE FEDERAL HIGHWAY ADMINISTRATION, THE ADVISORY COUNCIL ON HISTORIC PRESERVATION THE DELAWARE STATE HISTORIC PRESERVATION OFFICE, THE DELAWARE DEPARTMENT OF TRANSPORTATION

REGARDING IMPLEMENTATION OF THE PARK AVENUE RELOCATION PROJECT, SUSSEX COUNTY, DE

STATE CONTRACT NUMBER: T201304601 FEDERAL AID NUMBER: STP-S318(03)

WHEREAS, the Federal Highway Administration (FHWA) with the Delaware Department of Transportation (DelDOT) propose to improve Park Avenue (US 9 Truck Route), including partial relocation, from US 9 to Arrow Safety Road and US 113 in Sussex County, Delaware, hereon referred to as the "Project", (**Attachment A**); and

WHEREAS, during development of the Environmental Assessment for National Environmental Policy Act (NEPA) compliance, the FHWA selected Alternative 6 as the preferred alternative for the Project (**Attachment B**); and

WHEREAS, the Project has the potential to cause adverse effects to historic properties within the project area and is subject to Section 106 of the National Historic Preservation Act (NHPA) of 1966, (54 U.S.C. § 300101 ET SEQ.), as amended, and its implementing regulations under 36 CFR Part 800; and

WHEREAS, the FHWA in consultation with the DelDOT and the Delaware State Historic Preservation Office (DE SHPO) has established the Project undertaking's Area of Potential Effect (APE), as defined in 36 CFR 800.16(d), as those areas within the Limit of Construction (LOC), Temporary Construction Easements (TCE), Permanent Easements (PE), Right of Way (ROW), and adjacent or contiguous properties where visual effects may occur (**Attachment C**); and

WHEREAS, the FHWA, in consultation with the DelDOT and the DE SHPO, proposes to develop this Programmatic Agreement (PA) pursuant to 36 CFR 800.14(b) to provide for the ongoing review of the Project, the completion of the identification and evaluation of historic properties, assessment of the potential for adverse effects on historic properties, and consultation to resolve any adverse effects on historic properties; and

WHEREAS, the FHWA has elected to phase the identification and evaluation of historic properties as provided in 36 CFR 800.4(b)(2), but will ensure that DelDOT completes the process in a timely manner, to allow practical opportunities to avoid or minimize adverse affects to historic properties, as stipulated under this agreement; and

WHEREAS, the DelDOT, in consultation with the FHWA and the DE SHPO, is currently conducting a cultural resource survey within the Project APE which focuses on identifying and evaluating above-ground architectural properties that are over 45 years of age and may be eligible for listing on the National Register of Historic Places (NHRP); and

WHEREAS, the FHWA has determined that the Project may affect as yet unidentified historic properties that have not been subject to prior cultural resource investigations, such as areas that are associated with proposed alignment modifications or other Project-related ancillary activities including, but not limited to, stormwater management facilities, wetland mitigation sites, reforestation areas, staging, stockpiling and access areas, and disposal sites, and that the APE may need to be revised to consider such areas; and

WHEREAS, the FHWA has contacted the Delaware Nation, the Stockbridge-Munsee Community Band of Mohican Indians, and the Delaware Tribe of Indians, hereafter referred to as the Federally Recognized Indian Tribes to determine their interest in being a consulting party for this project. The Stockbridge-Munsee Community formally responded on October 24, 2017 that they do not need to be consulted further on this project. The Delaware Tribe formally responded on November 30, 2017 and the Delaware Nation formally responded on November 7, 2017 and both would like to consult on this project; and

WHEREAS, the FHWA has afforded and will continue to afford the public an opportunity to comment on the effects of the Project undertaking on historic properties through the National Environmental Policy Act (NEPA) of 1969, as amended; and through DelDOT's Public Involvement Procedures; and

WHEREAS, as part of the above public outreach DelDOT has contacted the Nanticoke Indian Association and the Lenape Indian Tribe of Delaware, hereafter referred to as the State Recognized Indian Tribes as potentially interested parties. DelDOT will continue to coordinate throughout this project with the State Recognized Indian Tribes as an interested party for all Native American archaeological sites and above ground resources that will be adversely impacted by the project; and

WHEREAS, the FHWA and DelDOT have notified the Advisory Council on Historic Preservation (ACHP) of the Project's potential to adversely affect historic properties on October 20, 2017 and again in 2018 to formally invite them to be a consulting party; and

WHEREAS, the DelDOT participated in the consultation, has responsibilities for implementing stipulations under this PA, and has been invited to be a signatory to this PA;

NOW, THEREFORE, the FHWA, the DelDOT and the DE SHPO agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the potential effect of the undertaking on historic properties, and if need be, to mitigate for Adverse Effects.

STIPULATIONS

The FHWA shall ensure that the following stipulations are implemented:

I. Archaeological Resources

A. Identification and Evaluation Survey

Prior to starting construction or other ground-disturbing activities, DelDOT in consultation with the DE SHPO and the Federally Recognized Indian Tribes, shall conduct identification (Phase I) archaeological surveys within the APE, and will determine if identified sites will require a Phase II level archaeological survey to evaluate their National Register of Historic Places eligibility. Evaluation Studies (Phase II) may require additional background research and/or additional field excavations. All surveys shall conform to the requirements of Stipulation VI. of this PA.

DelDOT shall prepare reports on findings of the archaeological identification/evaluation surveys and shall submit the reports to the DE SHPO and the Federally Recognized Indian Tribes for their review and concurrence. Upon receipt of the document, the review period will be thirty (30) days. FHWA and DelDOT will take into account comments and will recommend any next steps.

During the Evaluation Studies (Phase II), FHWA and DelDOT shall apply the National Register criteria (36 CFR 60.4) in accordance with 36 CFR 800.4(c), taking into account applicable historic contexts and management plans developed for Delaware's historic and prehistoric archaeological resources.

If FHWA and DelDOT determine that any of the National Register criteria are met, and the DE SHPO agrees, the archaeological site(s) shall be considered eligible for the National Register. If FHWA and DelDOT determine that the National Register criteria are not met, and the DE SHPO agrees, the archaeological site(s) shall be considered not eligible for the National Register.

Based on the Evaluation Studies (Phase II), should a signatory to this agreement not agree on the eligibility determination of an archaeological site(s), the DelDOT and FHWA shall obtain a determination from the Secretary of the Interior, pursuant to 36 CFR 800.4(c)(2), 36 CFR 63.2(c) and 63.3(d).

B. Effect Determination/Mitigation

If eligible archaeological sites are identified and affected within the APE, DelDOT will make a reasonable effort to avoid these sites or to minimize impacts to them. If the eligible sites cannot be avoided, DelDOT will apply the Criteria of Adverse Effect in accordance with 36 CFR Part 800.5.

If listed or eligible Native American archaeological sites are identified and affected within the APE, FHWA will consult with the Federally Recognized Indian Tribes.

If the project will have an adverse effect on archaeological sites, DelDOT in consultation with the DE SHPO and the Federally Recognized Indian Tribes as appropriate, shall develop a treatment plan. The treatment plan may include elements of data recovery and/or an alternative mitigation plan.

DelDOT shall submit the treatment plan to the FHWA, DE SHPO, other interested or consulting parties that may be identified, including the Federally Recognized Indian Tribes, for their review and comment. Upon receipt of the document, the review period will be thirty (30) days. Following thirty (30) days, DelDOT will take into account any comments, and will recommend any next steps to the FHWA and DE SHPO.

Should data recovery investigations be warranted, DelDOT and FHWA shall ensure that a data recovery plan is developed in consultation with the DE SHPO, and other consulting or interested parties, including the Federally Recognized Indian Tribes. The plan shall specify, at a minimum:

- the property, properties, or portions of properties where data recovery is to be carried out, and any property that will or may be destroyed without data recovery;
- research questions to be addressed through data recovery, with an explanation of their relevance and importance;
- the research methods to be used, with an explanation of their relevance to the research questions;
- the methods to be used in analysis, data management, and data dissemination, including a schedule;
- a provision for assessing materials that may be in need of conservation;
- proposed disposition of recovered materials and records;
- proposed methods for involving the interested public in the data recovery, and for disseminating the results of the work to the interested public;
- a proposed schedule for the submission of progress reports to the DE SHPO; and
- provisions to meet on-site in order to evaluate the success of the initial fieldwork phase of any data recovery program, and near the end of the fieldwork efforts to validate substantial completion.

If the agreed-upon treatment plan includes preservation in place of all or part of an eligible site, FHWA, DelDOT and DE SHPO in consultation with the Federally Recognized Indian Tribes shall determine the need for and negotiate the terms of any legal instruments that would ensure long-term preservation or protection of the site. Any such legal instrument shall include, at a minimum, the following elements:

- a clearly defined list of allowed uses and prohibited uses of the site; and
- an acknowledgement that protection measures are being instituted in order to minimize or mitigate the Project's adverse effects to a National Register-listed or –eligible property; and
- a prohibition on any party, its successors, heirs or assigns, from terminating, modifying, altering or otherwise setting aside any such legal instrument unless the party, prior to taking such action, first provides the signatories to this PA with written justification for termination, and consults with the signatories to develop a new treatment plan to address the potential adverse effects pursuant to 36 CFR Part 800.5, regardless of whether the term of this PA has expired or not.

When and/or if an alternative mitigation strategy is chosen and approved by the DE SHPO, FHWA, and DelDOT, it may include but is not limited to: acquisition and protection of portion(s) of the site, analysis and synthesis of past data accumulated through either DE SHPO, FHWA, and DelDOT projects, updating the relevant DE SHPO and DelDOT archaeological websites and GIS databases, development of historic and prehistoric contexts and preservation priorities, statewide predictive models, development of travel or informational displays with the cultural resource work for this Project, oral histories from the project APE, documentaries about the history of the APE, virtual tour/website about the archaeological sites being mitigated in the APE, and improved archaeological data management and access for both DE SHPO and DelDOT.

DelDOT will complete all necessary data recovery fieldwork prior to commencing construction in the site areas. Alternative mitigation may or may not be completed prior to commencing construction in the site areas.

DelDOT shall provide all draft and final archaeological reports and public information materials to the DE SHPO for review and comment. DelDOT will take into account any comments received. All final reports shall meet the Secretary of the Interior's standards and Guidelines for Archaeological Documentation (48 FR 44734-37), while also satisfying the DE SHPO's guidelines for archaeological surveys or investigations.

Should any Native American archeological sites be identified, DelDOT will also provide copies of relevant draft and final reports and public information materials to the Federally Recognized Indian Tribes for review and comment, and will take into account any comments the Federally Recognized Indian Tribes provide.

C. Public Involvement:

If mitigation is necessary, DelDOT will prepare a public participation plan and public information materials. Before releasing materials to the public, DelDOT shall submit the proposed action plan(s) with any materials to the FHWA, DE SHPO, and other consulting or interested parties, including the Federally Recognized Indian Tribes, for their review and comment. Upon receipt of the materials, the review period will be thirty (30) days. Following thirty (30) days, DelDOT will take into account any comments received, and will recommend any next steps, if necessary, to the FHWA, and DE SHPO.

The public participation plan may include, but is not limited to archaeological site tours for the public and educational groups. The specific public outreach materials produced will be determined individually for each site for which mitigation is necessary and may include, but are not limited to pamphlets, videos, historical markers, brochures, websites, exhibits, displays for public buildings, booklets on the history or prehistory of the project area, lectures or presentations at academic conferences, and/or public institutions such as schools and historical societies.

DelDOT shall distribute the public information materials to other consulting parties and interested parties, local schools, historical societies, libraries, senior centers, museums and/or other venues and individuals deemed pertinent in consultation with the DE SHPO, and FHWA.

D. Curation

DelDOT shall ensure that all records and materials resulting from the archaeological investigations will be processed, prepared for, and curated in accordance with 36 CFR Part 79 and the Division of Historical and Cultural Affairs' (the Division) "Guidelines for the Curation of Archaeological Collections" (2001) or its successor. These records and materials shall be curated at the Division, or its designee, following the policies of the institution, except as may be provided for under the following paragraph.

As part of the Public Involvement efforts outlined in Stipulation I.C. of this Agreement, the FHWA, DelDOT and DE SHPO will consult to determine if any archaeological materials may be loaned to a public museum or other public institution for the purposes of exhibit or research, following the Division's loan policy and procedures. Such loans and exhibits may occur only after the curatorial procedures, referenced in the first paragraph in this stipulation, have been completed. As deemed appropriate by FHWA, DelDOT, the DE SHPO, the Federally Recognized Indian Tribes and other consulting or interested parties will be consulted concerning curation and any public exhibition of artifacts.

E. Discovery of and Treatment of Human Remains and Burials

DelDOT Environmental Studies and/or appropriate DelDOT construction engineering staff shall immediately (within 24 hours) notify the DE SHPO and FHWA of the discovery of any human remains encountered during the archaeological investigations or the project construction. DelDOT shall cease all activities that may disturb or damage the remains, and comply with the Delaware Unmarked Human Remains Act (7 Del.C. Ch. 54).

If the human remains are of Native American affiliation, then FHWA will immediately notify the Federally Recognized Indian Tribes. FHWA and DelDOT will forward information regarding Native American discoveries to the DE SHPO and the Federally Recognized Indian Tribes for review and comment. This will occur as soon as possible, within a period no longer than two (2) weeks. FHWA will request that the parties comment on the information within two (2) weeks of receipt. FHWA will then consult with the Federally Recognized Indian Tribes, the DE SHPO and DelDOT to determine an appropriate course of action in accordance with 36 CFR 800, and taking into account the above cited state law.

The DE SHPO will comply with the Native American Graves Protection and Repatriation Act of 1990 (PL 101-601) with regard to disposition of the remains and/or associated funerary objects, as applicable.

F. Residual Right of Way

The Project will require property acquisition that may or may not involve impacts to archaeological sites. Should existing right of way or lands acquired (for purposes of the Project) be later subdivided and/or declared excess right of way (to be leased, transferred, or sold), preservation covenants for that subject parcel will first be considered by DelDOT, FHWA, and DE SHPO before DelDOT takes any action to divest itself from such lands. The parties will determine if the subject parcel(s) contain, or has the potential to contain, any historic properties, and if so, determine the need for any legal instruments that would ensure long-term preservation of such properties. Any such legal instrument shall include, at a minimum, the elements defined

in Stipulation I.B. of this PA. This will adequately address any reasonably foreseeable adverse effects that could occur due to transfer, lease, or sale of property purchased with Federal funds out of State ownership or control without adequate and legally enforceable restrictions to ensure long-term preservation (or mitigation) of historic properties (36 CFR part 800.5(a)(2)(vii)).

II. Architectural Resources

A. Identification and Evaluation Survey

DelDOT, in consultation with the FHWA and the DE SHPO, is currently conducting a cultural resource survey within the Project APE which focuses on identifying and evaluating above-ground architectural properties that are over 45 years of age and may be eligible for listing on the National Register of Historic Places (NHRP). During the Evaluation phase, FHWA and DelDOT shall apply the National Register criteria (36 CFR 60.4) in accordance with 36 CFR 800.4(c), taking into account applicable historic contexts developed for Delaware's architectural resources. All surveys shall conform to the requirements of Stipulation VII of this PA.

DelDOT shall prepare reports on the findings of the Architectural identification/evaluation survey and shall submit the reports to the DE SHPO for their review and concurrence. Upon receipt of the document, the review period will be thirty (30) days. FHWA and DelDOT will take into account comments and will recommend any next steps.

If FHWA and DelDOT determine that any of the National Register criteria are met, and the DE SHPO agrees, the architectural resource shall be considered eligible for the National Register. If FHWA and DelDOT determine that the National Register criteria are not met, and the DE SHPO agrees, the architectural resource shall be considered not eligible for the National Register.

Based on the result of the NHRP evaluation should a signatory to this agreement not agree on the eligibility determination of an architectural resource, then DelDOT and FHWA shall obtain a determination from the Secretary of the Interior, pursuant to 36 CFR 800.4(c)(2), 36 CFR 63.2(c) and 63.3(d).

Once the evaluations are complete and FHWA, DelDOT, and DE SHPO are in agreement on the determinations of eligibility for identified architectural resources, FHWA and DelDOT in consultation with DE SHPO will determine if there are any eligible architectural resources located within the APE. If there are no eligible resources located within the APE, DelDOT shall prepare a report formalizing a finding of No Historic Properties Affected for architectural resources. Upon receipt of the document, the review period will be thirty (30) days.

B. Effect Determination/Mitigation

If eligible architectural resources are identified within the APE, DelDOT will make a reasonable effort to avoid effects to those resources. If effects to eligible properties cannot be avoided DelDOT will make a reasonable effort to minimize the effects to the eligible resources during the plan development process. After semi-final plans have been submitted, FHWA and DelDOT in consultation with DE SHPO will formally apply the Criteria of Adverse Effect to the affected eligible properties in accordance with 36 CFR Part 800.5.

If no eligible properties are affected by the proposed project DelDOT shall prepare a report formalizing a finding of No Historic Properties Affected for architectural resources within the APE. Upon receipt of the document, the review period will be thirty (30) days.

If eligible properties are not found to be adversely affected by the proposed project DelDOT shall prepare a report formalizing a finding of No Adverse Effect for architectural resources within the APE. Upon receipt of the document, the review period will be thirty (30) days.

If the project will have an adverse effect on historic structures, FHWA and DelDOT, in consultation with the DE SHPO and the property owner, shall develop a mitigation plan. Options for mitigation will depend upon the nature of the adverse effect the project will have on the eligible property and may include measures to address physical property impacts or visual and/or auditory impacts. Possible mitigation measures may include landscaping features, the development of pamphlets, videos, historical markers, brochures, websites, exhibits, displays for public buildings, booklets on the history of the project area, lectures or presentations at academic conferences, and/or public institutions such as schools and historical societies.

Once a mitigation plan has been negotiated with the relevant parties, DelDOT will submit a finding of Adverse Effect and the mitigation plan to DE SHPO. Upon receipt of the document, the review period will be thirty (30) days. Following thirty (30) days, DelDOT will take into account any comments, and will recommend any next steps to the FHWA and DE SHPO.

C. Additional Architectural Studies

During the annual review of this PA, mandated in Stipulation IX., DelDOT shall consult with the DE SHPO and FHWA to determine the need for additional survey of buildings, structures, or districts that have come to meet the minimum fifty (50) year age criterion. If so needed, DelDOT shall identify and evaluate any additional such properties, following the process outlined for Architectural Resources in Stipulation II.A. of this PA, and shall assess the effects of the project following Stipulation II.B. of this PA.

III. Unexpected Discoveries

In the event that previously unidentified cultural resources are discovered or unanticipated effects to historic properties occur during construction, DelDOT shall instruct the contractor to cease construction in the immediate area, and immediately notify FHWA. FHWA shall comply with 36 CFR Part 800.13 by consulting with the DE SHPO. If said discovery or unanticipated effects pertain to resources of Native American affiliation, FHWA and DelDOT shall include the Federally Recognized Indian Tribes in the consultation. The FHWA will notify the DE SHPO and the Federally Recognized Indian Tribes within one (1) working day of the discovery. The FHWA, DelDOT, and the DE SHPO will meet at the location of the discovery within forty-eight (48) hours of the initial notification to determine appropriate treatment of the discovery prior to resumption of construction activities within the area of discovery. If the affected resource is of Native American affiliation, FHWA shall first consult with the Federally Recognized Indian Tribes before implementing any such treatment option.

IV. Review of Project Plans

DelDOT shall provide copies of preliminary, semi-final, and final design plans of the Project to the DE SHPO and any other party deemed appropriate for review and comment. FHWA will notify the Federally Recognized Indian Tribes of the availability of the plans and provide copies as requested (hard copies, CD's or electronic files depending on size and volume of plans) for their review and comment. DE SHPO and the Federally Recognized Indian Tribes will have thirty (30) days from the receipt of materials to provide comments on the plans. FHWA and DelDOT shall take into account any comments provided.

V. Subsequent Changes to the Project

If DelDOT proposes any changes to the Project affecting location, design, methods of construction, materials, or footprint of the Project, DelDOT shall provide the DE SHPO, and other consulting parties identified later in time with information concerning the proposed changes. The DE SHPO and consulting parties will have thirty (30) days from the receipt of this information to comment on the proposed changes. DelDOT shall take into account any consulting party comments, prior to implementing such changes. Should changes occur, DelDOT, in consultation with the DE SHPO, may need to redefine the APE beyond the areas depicted in **Attachment C**. DelDOT shall consult with the DE SHPO to identify and evaluate historic buildings, structures, sites and/or districts in any newly affected areas, and assess the effects of the project thereafter, following the process outlined in Stipulations I. and **Error! Reference source not found.**. of this agreement, or as applicable under 36 CFR 800.13.

VI. Administrative Stipulations

A. Personnel Qualifications

All cultural resource work carried out pursuant to this agreement will be performed by or under the direct supervision of a person or persons meeting at a minimum the "*Secretary of the Interior's Standards and Guidelines*" (http://www.cr.nps.gov/local-law/Arch_Standards.htm), formerly 36 CFR Appendix A to Part 61. DelDOT's Environmental Studies personnel will have direct authority to select and authorize any and all qualified cultural resource management firms or sub consultants to carry out this work on an as-needed basis throughout the duration of the Project.

B. Survey and Data Recovery Standards

DelDOT shall ensure that any and all cultural resource surveys and/or data recovery plans conducted pursuant to this PA are done in accordance with the *Secretary of the Interior's Standards and Guidelines for Identification and Evaluation*, and for *Archaeological Documentation*, as applicable, and in accordance with the DE SHPO's *Architectural Survey in Delaware* (2015, or its successor) and *Archaeological Survey in Delaware* (2015, or its successor).

Survey proposals and data recovery plans shall include a research design that stipulates: objectives, methods, and expected results; production of draft and final reports; and preparation of materials for curation in accordance with Stipulation I.D., including budgeting for initial

conservation assessments and treatment. Additional requirements for data recovery plans are found in Stipulation I.B of this Agreement.

All data recovery plans shall also take into account the Advisory Council on Historic Preservation's guidance for *Recommended Approach for Consultation on Recovery of Significant Information from Archaeological Sites*. Reports will meet professional standards set forth by the Department of the Interior's "*Format Standards for Final Reports of Data Recovery Program*" (42 FR 5377-79).

All data recovery plans, public outreach, or future consultation shall also follow and/or consider any supplemental guidance and provisions provided by, but not limited to, the American Association of State Highway Transportation Officials, FHWA, Transportation Research Boards, National Park Service, ACHP or recognized academic journals or professional organizations as identified by DelDOT and/or the DE SHPO.

DelDOT shall ensure that all draft and final cultural resource reports are provided to the FHWA and DE SHPO within two (2) years of the completion of any fieldwork. Draft and final cultural resource reports relevant to Native American Sites will also be provided to the Federally Recognized Indian Tribes.

VII. Dispute Resolution

Should any signatory to this Agreement object in writing to any plans, specifications or actions proposed or carried out pursuant to this agreement, FHWA shall consult with the objecting party to resolve the objection. If FHWA determines that the objection cannot be resolved, FHWA shall forward all documentation relevant to the dispute to the ACHP. Within thirty (30) days after receipt of all pertinent documentation, the ACHP will either:

A. Advise FHWA that the ACHP concurs in FHWA's proposed response to the objection, whereupon FHWA shall respond to the objection accordingly;

B. Provide FHWA with recommendations, which FHWA will take into account in reaching final decision regarding the dispute; or

C. Notify FHWA that it will comment pursuant to 36 CFR 800.7(a) and proceed to comment. Any ACHP comment provided in response to such a request will be taken into account by FHWA in accordance with 36 CFR 800.7(c)(4) with reference to the subject of the dispute.

Should the ACHP not exercise one of the above options within thirty (30) days after receipt of all pertinent documentation, FHWA may assume the ACHP's concurrence in its proposed response to the objection.

Any recommendation or comment provided by the ACHP will be understood to pertain only to the subject of the dispute; FHWA's responsibility to carry out all actions under this PA that are not the subject of the objection will remain unchanged.

VIII. Duration

This PA shall remain in force until its Stipulations have been fulfilled. This time period shall not exceed seven (7) years from the date of the final signature. If within six (6) months prior to the end of this seven year period, stipulations remain unfulfilled, the parties to this Agreement will consult to determine if extension or other amendment of the Agreement is needed. No extension or amendment will be considered in effect unless all the signatories to the PA have agreed to it in writing.

IX. Review of Implementation

FHWA, DelDOT, and the DE SHPO shall review the project annually, to monitor progress of the implementation of the terms of this PA. By agreement, DelDOT, DE SHPO and FHWA will meet in January of each year to discuss and report progress of active PA's including this project.

X. Amendments

Any party to this Agreement may propose to FHWA that the Agreement be amended, whereupon FHWA shall consult with the other parties to consider such an amendment, in accordance with 36 CFR Part 800.6(c)(7).

XI. Termination

A. If the FHWA or DelDOT determines that it cannot implement the terms of this PA, or the DE SHPO determines that the PA is not being properly implemented, FHWA, DelDOT, or the SHPO may propose to the other parties to this PA that it be terminated.

B. The party proposing to terminate this PA shall notify all parties to this PA, explaining the reasons for termination and affording them at least thirty (30) days to consult and seek alternatives to termination. The parties shall then consult.

C. Should all consultation fail, FHWA or the DE SHPO may terminate the PA by so notifying all parties in writing.

D. Should this PA be terminated, FHWA shall either:

1. Consult in accordance with 36 CFR 800.6(a)(1) to develop a new PA or;
2. Request the comments of the ACHP pursuant to 36 CFR 800.7(a)

Execution of this PA by the FHWA, DE SHPO and DelDOT and implementation of its terms is evidence that the FHWA has afforded the ACHP an opportunity to comment on the Park Avenue Relocation Project and that the FHWA has taken into account the effects of the undertaking on historic properties.

SIGNATORY PAGE

PROGRAMMATIC AGREEMENT

**AMONG THE ADVISORY COUNCIL ON HISTORIC PRESERVATION,
THE FEDERAL HIGHWAY ADMINISTRATION,
THE DELAWARE STATE HISTORIC PRESERVATION OFFICE, AND
THE DELAWARE DEPARTMENT OF TRANSPORTATION**

**REGARDING IMPLEMENTATION OF THE PARK AVENUE PROJECT
SUSSEX COUNTY, DELAWARE
STATE CONTRACT NUMBER: T201304601
FEDERAL AID NUMBER: STP-S318(03)**

THE ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: _____

John M. Fowler, Executive Director

Date: _____

SIGNATORY PAGE

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THE FEDERAL HIGHWAY ADMINISTRATION

By: _____

Mary Ridgeway, P.E., FHWA Delaware Division Administrator

Date: _____

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THE DELAWARE STATE HISTORIC PRESERVATION OFFICER

By: _____

Timothy Slavin, DHCA Director and State Historic Preservation Officer

Date: _____

SIGNATORY PAGE

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STATE CONTRACT NUMBER: T201304601
FEDERAL AID NUMBER: STP-S318(03)**

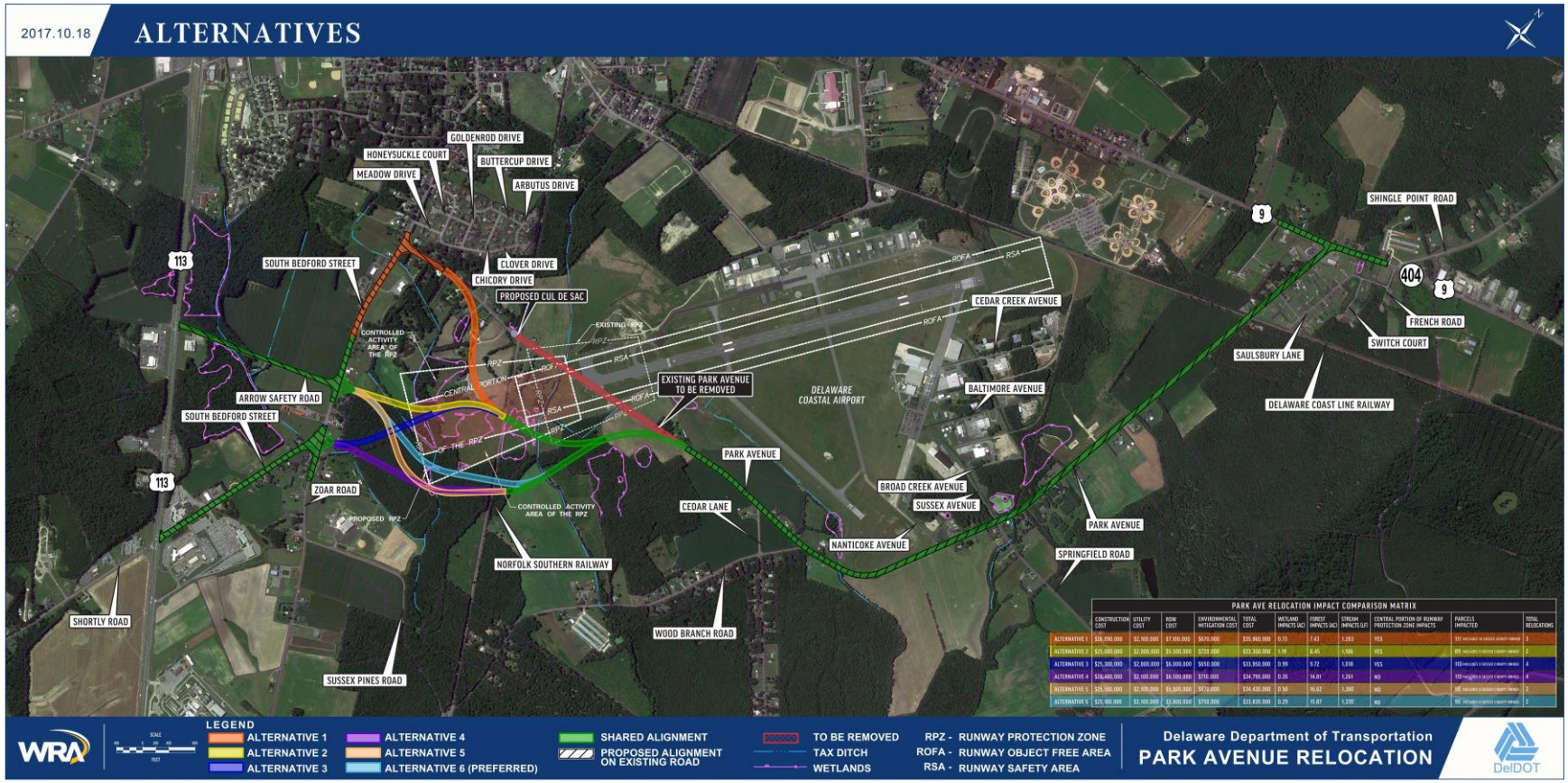
DELAWARE DEPARTMENT OF TRANSPORTATION

By: _____

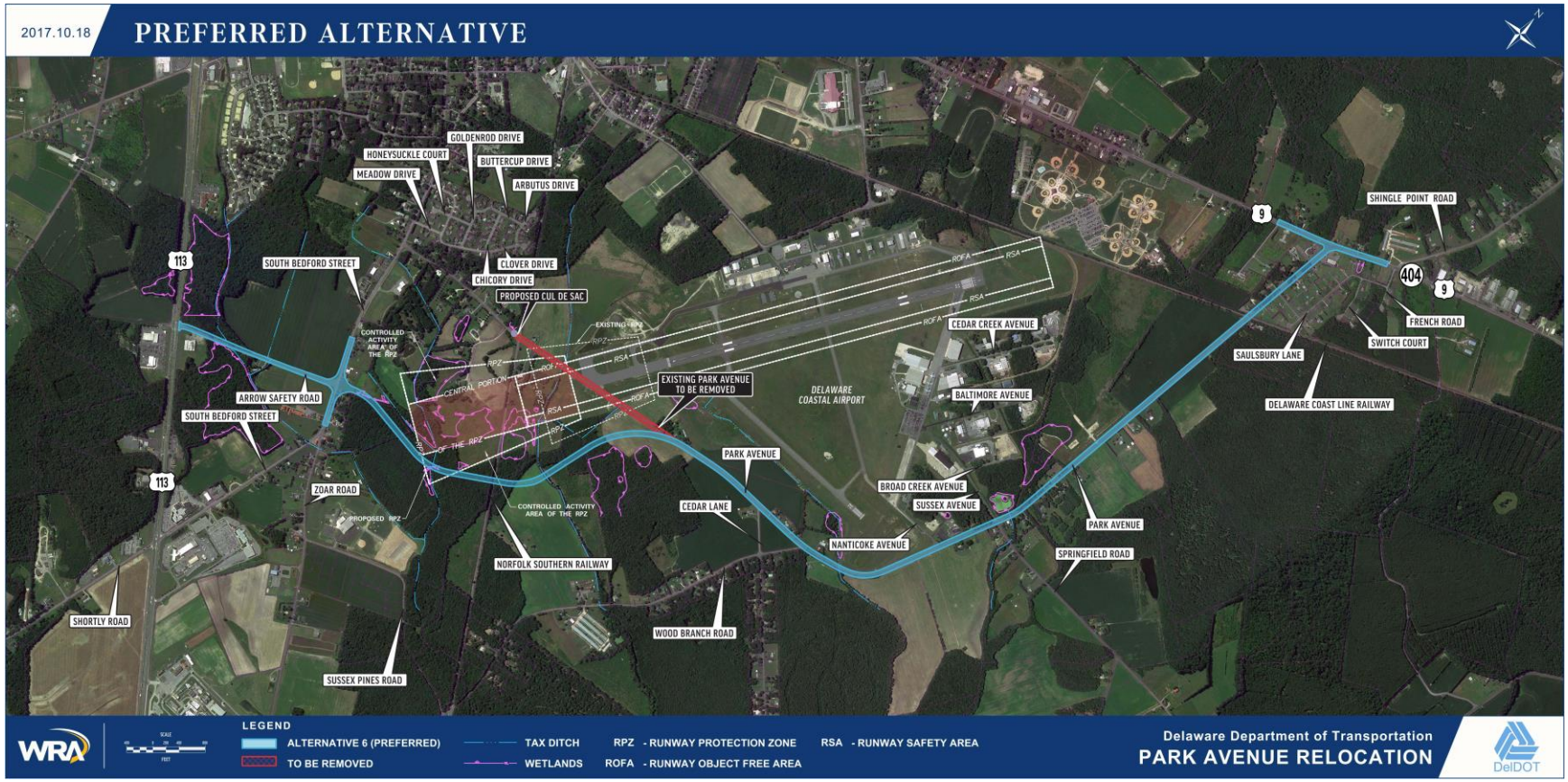
Robert McCleary P.E., DelDOT Chief Engineer

Date: _____

ATTACHMENT A: Alternatives Under Consideration as Part of the NEPA Process



ATTACHMENT B: Preferred Alternative for the Park Avenue Project



ATTACHMENT C: Project APE with Six (6) Project Alternatives